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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Communications.

HAS QUINIA A SPECIFIC ACTION ON THE DISEASED PROCESS OF TYPHOID FEVER?*

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One can not administer quinia to typhoid-fever patients according to the manner followed out by me in my practice for a number of years without becoming aware that, beside the antipyretic action quinia is generally recognized to exercise when given in massive doses, beneficial results accompany its employment, which are not referable to a mere lowering of the temperature, and to the consequent sense of relief which the patient undoubtedly experiences when the strain to which his organs are put by the pyrexia is removed.

The method I have adopted and systematically carried out since 1881, is to administer grs. v to infants, grs. vijss to x to children, and grs. xv to xxx to adults, in solution with muriatic acid, or mixed with syrup or fluid extract licorice, and then followed by lemon juice or muriatic acid within half an hour, every evening between 7 and 8 o'clock, until the evening temperature does not exceed 102°, and then every other evening

* Read before the Posey County (Ind.) Medical Society.

till the morning temperature has permanently become normal. The object I seek to arrive at is, primarily, to force an early breaking up of the disease, and, secondarily, the prevention of hyperpyrexia, a high and obstinate grade of fever furnishing an indication not for the exhibition of quinia—this indication is furnished by the disease—but *for a crowding of the doses and for an increase in their size.*

By the course the disease takes under this method I have long become convinced that,

1. Quinia can abort the typhoid fever process.
2. If the disease is not aborted its duration is shortened.
3. It is made to pursue a milder course.

It shall be my aim to show at the head of the cases of typhoid fever observed by me during the past year that this beneficial effect of quinia is not due to its antipyretic powers, but to a *specific* action it exerts upon the typhoid-fever process. In order to avoid misunderstandings I will, before entering into the discussion of this problem, define my position with regard to the so-called typho-malarial fever. I hold that the class of malarial fevers constitutes one entity of disease, and typhoid fever another entity, and that the two do not combine to form a new entity of disease, though either may be superimposed upon the other in the same patient. A form of fever is, however, found with us, which occurs in late summer and autumn, attacks all ages alike, runs a tedious course, generally with but slight elevation of temperature, in which sudden exacerbations up to 103° and 104° not infrequently occur; the prostration is great; there is no pain, or at most a drawing sensation through the limbs as the fever rises; the complexion is grayish-yellow, the face generally somewhat puffed; a musty smell emanates from the patient; he feels dull and heavy, and is bodily and mentally unfit for work; the head feels heavy, there is rarely pronounced headache; the mind is clear; the nights are sleepless; visions occur; the pulse may be abnormally slow, a hard, heavy throb, but more often it is empty and frequent, out of proportion to the temperature, a pulse of 120 often accompany-

ing an almost normal temperature; it is very irritable, and is greatly diminished in frequency by rest in bed; the tongue is either foul, large, flabby, teeth-indented, or inclines to dryness, and then has a red streak through its middle; the bowels are torpid, or may be loose with variable passages, the odor of the evacuations and of the flatus is very offensive, often the sharp, penetrating, sweetish, sickening smell of the typhoid stools first strikes the nose; the liver and spleen are swelled; the belly is tumid and feels doughy, and when the disease has lasted a time circumscribed tender spots are found on palpating the abdomen. The patient feels better of mornings. Sometimes, as the day advances, there is a cool sensation, with cold hands and feet at a certain hour of each day, and this chilly spell and the slight increase of fever that follows upon it quinia is unable to prevent, even if the patient is fully cinchonized at the time of its occurrence. This condition may drag on for months, and if the patient does not succumb to it finally wears out, leaving the individual greatly enfeebled, subject to gastric and hepatic catarrh, prone to be attacked by pneumonia, which then becomes "typhoid," and to chronic ague. The next autumn brings a new attack, and so on for a number of years in succession. A course of mercury, hydrarg. bichlorid., grs. 1-24, four times a day, begun some weeks before the usual onset and kept up for several months, and a few large, evening doses of quinia when the person feels feverish, will often forestall this trouble. This is our *typho-malarial* fever.

I regard this disease as *typhoid* fever, and ground my belief in the purely typhoid character of this disease; on the occurrence of very severe local lesions in cases of this disease, of which several instances, even two of perforation, have come under my notice; on the want of success which attends the use of quinia in this fever, when the drug is given in the way it proves most efficient in malarial fevers, and the brilliant results that follow the inauguration of a strictly typhoid-fever regimen, rest in bed, selected diet, and appropriate treatment; and on the fact that of late years, wherever malarial fevers have greatly

diminished in frequency, this form of fever, which would seem to represent a very severe intoxication, has greatly increased. The following table shows the number of cases of malarial fevers—intermittent and remittent—compared with the typhoid fevers—typhoid and typho-malarial—that have occurred in my practice from 1876 to 1884 inclusive. The table also shows the number of chronic malaria cases—chronic ague and malarial cachexia—that have occurred during the same time. I have added these in order to prove, by the corresponding decrease in chronic malarial cases of late years, that there is really a diminished activity of the malarial poison to be observed in these years, and that the falling off in my fever cases is not to be ascribed to the fact that quinia, by its cheapness and by the better understanding of its proper employment in malarial fevers by the people, has become a household remedy, and that on this account the lighter forms of malarial intoxication are no longer brought to a physician's notice.

TABLE I. SHOWING THE NUMBER OF CASES OF THE MALARIAL AND TYPHOID FEVERS FROM JANUARY 1, 1876, TO JANUARY 1, 1885.

YEAR.	MALARIAL FEVER.	TYPHOID FEVER.	CHRONIC MALARIA.
1876	398	3	118
1877	406	3	65
1878	179	5	44
1879	173	2	31
1880	223	5	42
1881	137	19	27
1882	186	16	33
1883	97	6	13
1884	110	25	18

Although it is of no clinical importance to separate the typho-malarial from the typhoid-fever cases, since it is not an anti-malarial but anti-typhoid line of treatment that is adapted to this disease, still, as the nosological position of typho-malarial fever is far from being established, I shall exclude from my list of typhoid-fever cases those in which any doubt attaches as to their being purely typhoid, and shall base

my deductions as to the specific action of quinia only on observations gathered from these latter.

During the year ending August 15, 1885, twenty-two cases of typhoid fever came under observation, of which twelve are classed as typhoid and ten as typho-malarial. Table II gives the typhoid-fever cases, and Table III the typho-malarial cases.

TABLE II. SHOWING CASES OF TYPHOID FEVER UNDER OBSERVATION FROM AUGUST 15, 1884, TO AUGUST 15, 1885.

- Case 1. Man, aged 20, infection proved; first seen on fourth day, defervescence on seventeenth day, highest temperature on seventh day, 104° .
Case 2. Man, aged 45, infection probable; first seen on third day, was refused attendance on seventh day, died in fourth week.
Case 3. Girl, aged 22, infection probable; first seen on fourth day, defervescence on sixteenth day, highest temperature on fifth day, 103.5° . Relapse.
Case 4. Man, aged 21, infection proved; first seen on first day, defervescence on eighth day, highest temperature on fifth day, 103° . Relapse.
Case 5. Man, aged 33, roseola well marked; first seen on fourteenth day, defervescence on eighteenth day, highest temperature on fourteenth day, 102° . Relapse.
Case 7. Man, aged 38, infection probable; first seen on fourth day, defervescence on thirteenth day, highest temperature on fourth day, 102.5° .
Case 9. Girl, aged 3, infection proved; first seen on sixth day, defervescence on thirteenth day, highest temperature on eighth day, 103° .
Case 11. Man, aged 36, infection probable; first seen on first day, defervescence on fourth day, highest temperature on first day, 100° .
Case 12. Woman, aged 37, infection proved; first seen on fourteenth day, defervescence on twentieth day, highest temperature on fourteenth day, 104° . Relapse.
Case 13. Boy, aged 10, infection unknown; first seen on tenth day, defervescence on eighteenth day, highest temperature on tenth day, 104° .
Case 21. Boy, aged 14, infection unknown; first seen on fourth day, defervescence on twelfth day, highest temperature on sixth and seventh days, 103° .
Case 22. Boy, aged 8, infection probable; first seen on first day, defervescence on nineteenth day, highest temperature on fourth day, 104° .

TABLE III. SHOWING CASES OF TYPHO-MALARIAL FEVER UNDER OBSERVATION FROM AUGUST 15, 1884, TO AUGUST 15, 1885.

- Case 6. Man, aged 22; first seen end of first week, with temperature 101° , defervescence on fourth day of treatment.
Case 8. Woman, aged 53; first seen end of first week, with temperature 103° , defervescence on seventh day of treatment.
Case 14. Woman, aged 67; first seen end of second week, with temperature 99.5° , defervescence on fourth day of treatment.
Case 15. Girl, aged 2; first seen end of first week, defervescence on fourth day of treatment.

- Case 16. Woman, aged 40; first seen on fifth day, with temperature 100° , defervescence on eleventh day of treatment.
- Case 17. Girl, aged $1\frac{1}{2}$; first seen end of first week, with temperature 101.5° , defervescence on sixth day of treatment.
- Case 18. Man, aged 56; first seen beginning of second week, with temperature 100° , defervescence on fifth day of treatment.
- Case 19. Girl, aged 1; first seen beginning of third week, defervescence on fourth day of treatment.
- Case 19.* Man, aged 23; first seen on second day, with temperature 102.5° , defervescence on sixth day of treatment.
- Case 20.† Woman, aged 48; first seen end of seventh week, with temperature 101° , defervescence on twenty-first day of treatment.

In order to determine the character of the action of quinia on the typhoid-fever process we must study what effect the administration of this remedy has upon the manifestations of that disease. It may be premised that up to this day clinicians have regarded the effects quinia exercises on typhoid fever as due to its antipyretic power on the general febrile process, and that its use has been very strongly insisted on by the followers of the antipyretic method in typhoid fever on account of this same power alone, and as strongly condemned for the same reasons by those who object to this line of managing fevers. The former have gone so far as to attribute *all* the good results obtained by the administration of quinia in typhoid fever to its antipyretic action; and the latter, disbelieving the correctness of the theory of this method, have denied any and all virtues to this drug in this fever. (Consult *Eichmeister Antipyretische Heilmethodom*, 1880, page 56 *et seq.*, and National Dispensatory, 1879, article, Quiniæ Sulphas, page 1208.) The error with the former lies in that the method of antipyresis having been built up on its success in *this very* fever, and the brilliant effects of quinia having largely contributed to build up this manner of treatment, in looking for an explanation of the results following the administration of quinia in typhoid fever, partial has been taken for the whole effect, and one of the manifestations—a reduction of the pyrexia—of a certain action of quinia on the

*Typhoid infection almost positive. Patient had been for two hours in close room in which bedding and clothes of a man dead with typhoid were kept.

† All symptoms of intestinal ulceration were present in this case.

typhoid-fever process, has been substituted for that power itself. The mistake into which the latter have fallen is that they have allowed theoretical considerations to get the better of their judgment, so that they fail to see, what is as clear as mathematical demonstration, that after every heavy dose of quinia administered in the evening, a most happy effect is produced on the course of the typhoid fever, and that without any prejudicial influence on the patient.

I will now proceed to examine what effect quinia has on the manifestations of typhoid fever, and will consider this point successively with regard to the temperature, the local symptoms, the duration, the general course of the disease, and the general condition of the patient.

The Temperature. The following charts show the course of the temperature in eight of the twelve cases of typhoid fever. The quinia was given between 7 and 8 P. M., and the temperature was taken before 8 A. M., and between 6 and 7 P. M. The thermometer was kept *in axilla* for five minutes, and very often two and three observations were taken in order to exclude error.

TABLE IV. SHOWING HOW QUINIA AFFECTS THE TEMPERATURE OF TYPHOID FEVER.

NO. OF CASE.	Day of Disease.	Morning Temperature.	Evening Temperature.	Dose of Quinia Administered.
No. 1	5	. . . . .	104°	Grs. xv.
	6	102°	104	
	7	101	104	Grs. xxv.
	8	101	102.5	
	9	100	103.5	
	13	100.2	101.5	Grs. xv.
	14	N.	101.5	
No. 3	15	N.	100.5	
	5	. . . . .	103.5	Grs. x.
	6	100	101.5	
	7	99.5	99.5	Grs. xv.
	14	. . . . .	102.5	
	15	100	. . . . .	Grs. xv.
	16	N.	101.5	
No. 4	17	N.	N.	
	18	N.	N.	
	3	. . . . .	102.5	Grs. xv.
	4	101	102.33	
	5	100	103	Grs. xx.

No. of CASE.	Day of Disease.	Morning Temperature.	Evening Temperature.	Dose of Quinia Administered.
No. 4.	6	100°	102°	
	7	99.5	99.5	
	8	N.	N.	
No. 11	3	100	100	Grs. xx.
	4	N.	N.	
	5	N.	N.	
No 12	14		104	
	15			Grs. vijss.
	16	101		
	17			Grs. x.
	18	100.5		
	19	N.	N.	
No. 13	10		104	
	11			Grs. x.
	12	101		
	14		103	Grs. xv.
	16		102	Grs. xv.
	17	N.	N.	
No. 21	5	102		Grs. x. *
	6		103	Gr. xv and morphine $\frac{1}{4}$ to $\frac{1}{2}$ gr.
	7	Collapse.	103	
	8			Grs. vijss every four hours till 2 A.M. of tenth day.*
	10	100		
	11			Grs. x.
No. 22	12	N.	N.	Grs. x.
	2		103.5	Grs. vijss.
	3	100.5	103	Grs. vijss.
	4	101	104	Grs. vijss.
	5	100.5	103.5	Grs. vijss.
	6	101	100.5	Grs. vijss at 7 A.M.
	7	100	103.5	Grs. vijss.
	8	99	102	
	9	100.5	103	Grs. vijss.
	10	99.5	102	
	11	100	102	Grs. vijss.
	12	99	101.5	
	13	99.5	102	
	14	100	102	Grs. vijss.
	15	98.5	100.5	
	16	98.5	101.5	Grs. vijss.
	17	98	100	
	18	98.5	100.5	
	19.	98.5	98.5	

* Reported free from fever this morning.

TABLE V. SHOWING COURSE OF TEMPERATURE IN CASE 22 FROM THE FIFTH TO THE ELEVENTH DAY.

Fifth day. 7 A. M., 100.5°; 10 A. M., 100.5; 12 M., 101; 3 P. M., 102.5; 5 P. M. 103.5; 7 P. M. 103.5; 8½ P. M., 101; 9½ P. M., 101; 10½ P. M., 102; 11½ P. M., 101; 12½ A. M., 102.5; 1½ A. M., 102.5; 2½ A. M., 102.5; 3½ A. M., 103.5; 4½ A. M., 102; 5½ A. M., 101.5.

Sixth day. 7½ A. M., 101°; 10 A. M., 101; 11½ A. M., 101.5; 3 P. M., 101.5; 5 P. M., 101; 7 P. M., 100.5; 8½ P. M., 100; 11 P. M., 102; 1 A. M., 101.5; 3 A. M., 101; 5 A. M., 101.

Seventh day. 7 A. M., 100°; 9 A. M., 101; 11 A. M., 101; 1 P. M., 102; 4 P. M., 102; 7 P. M., 103.5; 9 P. M., 102; 10 P. M., 102; 1½ A. M., 100; 3½ A. M., 100.

Eighth day. 7 A. M., 99°; 10½ A. M., 99.5; 12 M. 100.5; 5 P. M., 102½; 7 P. M., 102; 8½ P. M., 102.5; 10 P. M., 102; 12 P. M., 102; 2½ A. M., 100½; 5 A. M., 101.

Ninth day. 7 A. M., 100.5°; 12 M., 101; 2 P. M., 102; 6 P. M., 103; 7½ P. M., 103; 8½ P. M., 102; 9½ P. M., 101; 11½ P. M., 100; 4½ A. M., 99.5.

Tenth day. 7 A. M., 99.5°; 10 A. M., 99.5; 12½ P. M., 101.5; 2½ P. M., 102.5; 5½ P. M., 102; 7½ P. M., 102; 10½ P. M., 102; 1½ A. M., 101; 4 A. M., 100.5.

Eleventh day. 7½ A. M., 100°.

From a study of these cases I feel justified in drawing the following conclusions as to the action of quinia on the pyrexia of typhoid fever:

1. The grade of the temperature is lowered.
2. There is no *febris continua*, or if there is it is of a lower grade, even if the quinia be withdrawn after the disease has once felt the influence of the drug.
3. The duration of the pyrexia is shortened.
4. At times the temperature is permanently reduced to normal by the first dose.
5. Toward the close of the disease the morning temperature frequently becomes permanently normal, even where for a number of days the evening temperature still rises two or three degrees.
6. A prognostic sign of favorable import is a profuse sweat that may follow the administration of the quinia. In cases that come to a favorable end speedily the patient's clothing is drenched in a profuse and very offensive sweat, while in those that are destined to run a protracted course no perspiration at all, or only a slight moisture appears. Some of these protracted cases run their course to the end with a harsh and dry skin.
7. The temperature is lowered on the morning following the exhibition of the quinia in the *stadium incrementi* as well as in the *stadium decrementi*.
8. The effect is greater in the *stadium decrementi*.
9. The temperature is lower on the evening following the giving of the quinia than on that evening, often in the *stadium incrementi* and always in the *stadium decrementi*.

10. Often the decline in temperature attains its highest degree on the second morning following the evening of the administration of quinia.

11. In Case 22, quinia given on the morning of the sixth day, when the temperature had been reduced from 103.5° to 101° by the dose of the previous evening, gave an evening temperature of 100.5° , a morning temperature of 100° , and an evening temperature of 103.5° . So also a dose of grs. vijss given every four hours to Case 21, from the morning of the eighth day to 2 A. M. of the tenth day, gave a temperature of 100° at 7 A. M. of the tenth day, while a dose of grs. x on the evening of the eleventh day fixed defervescence.

12. In Case 22, an omission of the evening dose on the thirteenth day gave a morning temperature of 100° , which had not been attained for two days, and a higher and more steady fever during the day.

13. In Case 21 collapse of a dangerous degree ensued three hours after the medicine was given, when on the evening of the sixth day, with a temperature of 103° , quinia grs. x, and morphia gr. $\frac{1}{4}$ to $\frac{1}{2}$, was given in solution. But as the same dose of quinia was given to the same case before and after this accident without any untoward symptoms, and as this was the only instance of collapse in all the many cases treated in this way for a number of years, and as the symptoms on the morning of the seventh day—temperature subnormal, pulse 56, respiration slow and sighing, surface cold, bathed in cold, clammy sweat, pupils narrowed, great drowsiness—pointed to narcotic intoxication, I must hold the morphia in the draught responsible for the collapse. The temperature on the evening of the seventh day was again 103° .

Bowel Symptoms. When quinia is given in the manner indicated severe bowel symptoms never arise, or are limited to the first week of the disease. As a rule no complaint is made of the bowels at all spontaneously. For twelve to twenty-four hours after the doses are administered the tympany and the yeasty feel are removed or greatly reduced, but gradually the abdomen

again becomes tumid, doughy, and painful on palpation. A tendency to constipation is manifest under this method of treatment, and it is necessary to resort to loosening medicine several times during the continuance of each case. Contrary to the apprehension expressed by the learned authors of the National Dispensatory, I have never observed in any of the many cases of typhoid fever treated according to this plan any irritation of the intestinal ulcers. The limitation of the bowel symptoms to the early part of the disease, and the speedy recovery of the normal functions of the intestines, evidenced by absence of pain, perfect intestinal digestion and absorption, normal and well-formed evacuations, would seem to justify the opinion forced upon the observer by the mild course and the early termination of the pyrexia that the ulcerative stage is never reached, or at least that it does not attain a high degree..

Duration and Course of the Disease: Relapses. When typhoid-fever cases come under treatment early, within the first twenty-four to forty-eight hours after the onset of the pyrexia, it occasionally happens that the fever is completely broken up by the first dose of quinia. Case 11 is an illustration. Such cases have come under my observation, though not very often. When I did meet them, I have always been very careful to exclude all other forms of disease, and to try by establishing the infection, or from the prodromate, or from the great breaking down of the strength out of all proportion with the insignificance of the disease, to make out that the case was really typhoid fever. More usually cases that come in hand early do not terminate before the eighth or tenth day, like Case 4. Instances, however, do occur, like Case 22, which, though careful treatment and scrupulous attention are bestowed on them from the beginning of the malady, still last nearly three weeks. When the disease has lasted a number of days before help is summoned, defervescence will not be established before the thirteenth to twenty-first day. No case treated by me has run far into the fourth week.

But the duration of the treatment will illustrate better than

the duration of the disease the value of the quinia administration. Thus, of my typhoid-fever cases, those that came under observation on the first day of the disease were under treatment 7, 4, 19 days before defervescence was permanently established; those that came under observation on the fourth to seventh day, 13, 13, 9, 7, 8 days, and those that came under observation from the seventh to the fourteenth day, 4, 6, 8 days.

And of my typho-malarial patients, those that came under observation during the first week, 4, 7, 4, 11, 6, 6 days; those of the second week, 4 and 5 days; one in the third week, 4 days, and one who had been sick seven weeks, 21 days. While the duration of the typhoid fever is shortened under this method of treatment its course also becomes more mild, severe symptoms are rare, recovery is the rule, convalescence seems more rapid, and restoration of the integrity of the vital organs appears more complete and more speedy than when quinia is not administered. This observation applies with equal force to typhoid and typho-malarial fever; my patients recover fully and speedily from both. Since 1881 I have administered quinia methodically to my typhoid-fever cases, and although some very severe cases have come into my hands the mortality list has remained exceedingly small.

The following is my list of deaths from January 1, 1879, to the present time: 1880, man, aged 58, typho-malarial fever, intestinal ulcers, perforation; 1881, man, aged 63, typho-malarial fever, intestinal ulcers, perforation; 1882, woman, aged 30, sick three weeks, first seen four days before death; 1882, woman, aged 21, colored pauper.

Relapses would seem to be of relatively frequent occurrence under the method pursued by me, for there were *four* relapses among my *twelve* typhoid-fever cases. This result is, however, not ascribable to the course of treatment pursued, but was due in every case to gross neglect of those precautions that must always be observed after convalescence from typhoid fever. Thus, Case 3 took a trip to Chicago within a week after defervescence, and arrived there in relapse; Cases 4 and 5 indulged

in all the luxuries of the table and spent late hours in the saloons as soon as their legs could carry them; Case 12 drove eight miles to town on a rough road six days after defervescence. The patients make such rapid recovery and the disease pursues such a mild course under this line of treatment that patients do not appreciate the dangers to which they were exposed, make light of the physician's admonitions of proper care during the convalescent stage, and a relapse is the consequence. It is the same here as after recovery from acute rheumatism under the salicylic-acid treatment. (*Vide Amer. Pract.*, vol. 11, 53.)

The Condition of the Patient. After the *stadium incrementi* is over the patient is comfortable in the fullest sense of the word. There are rarely any but the lightest cerebral symptoms present; at night sleep soon becomes sound. There is but little headache when the fever exacerbates, and this is relieved promptly by cold compresses. Tormina was present only in Case 22, during the first week of the disease, and some lumbar pain was complained of by Case 4; both ceased as soon as the treatment had begun to influence the disease. It is difficult to keep the patients in bed, or to convince their attendants that they are far from well. In several of my cases final defervescence was delayed by patients insisting on getting out of bed, they felt so well. Even when too weak to attempt this they lie in full consciousness, and by their whole demeanor show how comfortable they are. But the scene changes immediately the quinia is let up on. Thus, in Case 22, when in the evening of the thirteenth day, with a temperature of 102° , the quinia was omitted, the patient on the morning of the fourteenth day had a temperature of 100° , a point it had not attained for two days, and was more apathetic and ill-disposed than for some time before. This dullness of the sensorium continued all day, and the temperature reached 102° by 11 A. M., while it had taken to 6 P. M. the day before to make this point. Many similar instances might be cited.

Deductions. Taking now a general review of the results accomplished by the methodical administration of quinia in

typhoid fever, we find by the quinia treatment the temperature to be always reduced often to normal, and a long time to elapse before the former height is regained; we find the duration of the pyrexia to be greatly shortened; we find a temporary improvement in the intestinal symptoms after each dose of quinia, and that the severer bowel lesions never develop; we find the duration of the disease to be shortened, and the time of treatment to be greatly reduced; we find the course of the disease made mild, harmless to the patient, terminating in complete recovery in a short time with a greatly diminished mortality; we find the general condition of the patient to remain remarkably good for so severe a malady. Are these happy results that follow this method attributable solely to the antipyretic power of quinia? This seems improbable. Cold water, the only *simple* antipyretic our *armamentarium* holds, properly employed reduces the temperature, and more efficiently than quinia, but the course of the pyrexia is entirely different under its use from that under quinia. Its action is evanescent, it is exhausted in an hour or two in the *stadium incrementi* and *febris continua*, and then all the disagreeable and dangerous symptoms again become paramount, and a new bath must be resorted to. The action of quinia, a drug which is cast out from the system within six hours after its ingestion (Farquharson, 1877, page 176), is extended to twenty-four, forty-eight, and more hours, and even if the body warmth regains its former height the disease itself has lost its acuity. Besides, if it were only its antipyretic virtue to which quinia owes its good influences on typhoid fever, the pyrexia of other fevers would pursue a similar course under the quinia treatment. This, however, is not the case, for either quinia fails to exert any antipyretic action at all in other fevers, or its action is more similar to that of cold water, extremely fugitive and without any lasting influence on the disease, or a manifest effect is produced only toward the natural close of the disease in hastening and intensifying the crisis. Table VI shows in illustration how quinia affects the temperature of cerebro-spinal meningitis.

TABLE VI. SHOWING HOW QUINIA AFFECTS THE TEMPERATURE OF CEREBRO-SPINAL MENINGITIS.

CASE.	Day of Disease.	A.M. Temp.		P.M. Temp.	Quinia and How Given.
Case XVI, boy, aged 14.	8	101°	. . .	102°	Grs. x at 8 P. M.
	9	103	. . .	104	
	22	100	. . .	104	
	23	98.5	2 P. M.	104	Grs. x at 6 A. M. and 10 A. M. of 24th day.
	24	98.5	98.5°	103	
	25	100	. . .	99.5	
	26	101	. . .	99.5	
	27	104	. . .	101	Grs. x at 8 P. M.
	28	99.5	4 P. M.	103	Grs. x at 8 P. M. of 28th, and 4 and 12 A. M. of 29th day.
	29	99.5	99.5	103	
Case VI, boy, aged 20.	9	98.5	. . .	102	
	10	101	. . .	102	Grs. x at 7 P. M.
	11	101.5	. . .	101	Grs. x at 7 P. M.
	12	100	. . .	102.5	
	13	98.5	12 M.	101.5	
	14	98.5	98.5	100.5	Grs. x at 7 and 12 of this day.

And again, the beneficial influence of quinia in typhoid fever is not limited to those cases that run their course with a more or less high pyrexia, but is equally marked in cases of normal or but slightly raised temperature. These cases get well as fast and as perfectly as the others.

It is a matter of common observation that improper diet and insufficient or improper evacuations from the bowels will bring up the temperature of typhoid fever, even after complete deferescence has taken place, and that a suitable evacuant will often promptly fetch down the body heat, and no new rise will follow unless new cause is given. In this, it seems to me, the peculiar influence of quinia on the typhoid-fever process finds its parallel. It would seem that quinia neutralizes in the system or discharges therefrom the causes or the products of the typhoid-fever process, and that its influence is not limited to the time the drug remains in the body, but continues until these causes of typhoid fever or the waste products of the same have been removed or have reaccumulated.

Concluding Remarks. The question, to the solution of which

I have now attempted to contribute my mite, I take to be, not whether quinia properly administered in typhoid fever lessens the severity of this disease, its duration, and its mortality, for this point I regard as settled beyond peradventure or doubt, but whether this effect of quinia is due merely to the antipyretic property it possesses in common with cold water, or whether there is some other virtue in quinia that causes its good results in typhoid fever. And if the advantages derived from the employment of quinia in typhoid fever are not due to its antipyretic but to some other property, whether some mode of administering this drug should not be adopted by which, while antipyresis is incidentally accomplished and hyperpyrexia prevented, this other virtue, call it specific, depurative, or what not, may be brought most fully to bear on the typhoid-fever process. I think I have shown that if a dose of quinia, large but proportioned to the age of the patient, is exhibited every other evening, or if the disease is very obstinate every evening, throughout the entire course of the pyrexia, typhoid fever is reduced to a very manageable and little dangerous affection, and its course greatly curtailed. It matters not whether we call this action of quinia a specific action, or whether we concur with Binz, who asserts that, "Quinia does not put an end to an attack of *typhoid* fever as it does to one of intermittent fever. In the first-named disease it has no specific operation, but only so weakens the putrid ferments that they run their course less destructively." For, in reality, we know as little of the action of quinia in one as we do in the other of these fevers, and we simply call the action of quinia in malarial fevers *specific* because we see that certain easily-recognizable phenomena always follow its use in these fevers. Phenomena of the same nature, only less in degree also follow its administration in typhoid fever, for, according to Ringer, even in ague quinia frequently removes only the grosser manifestations of the disease, and hence is not by far the ideal specific it is usually thought to be. He says (*Therapeutics*, 1880, page 579):

"Quinia generally arrests the disease (intermittent fever) at once. It is well, however, to bear in mind that this remedy may dissociate the other symptoms from the elevation of the temperature; or, in other words, it may remove the shivering, sweating, quick pulse, while the temperature may remain as great, or nearly as great as on previous days. Mere rest will occasionally effect the same dissociation. Unless the unnatural elevation of temperature has been restrained, the paroxysms will speedily return. This fact it is necessary to recollect, otherwise it may be concluded that with the removal of the more obvious symptoms the disease itself is cured, and thus the patient may be permitted to return to his usual avocation.

"A still more curious circumstance remains; that is, quinia may check all the symptoms, even the periodical elevation of the temperature, and yet, about the same time of day that the series of symptoms were wont to take place, an increase in the urea and urinary water may occur as during a severe paroxysm; that is, all the symptoms of the paroxysm are absent, except those pertaining to the urine."

But to the action of quinia in the typhoid-fever process of what kind soever, the experience detailed above appears to me to show conclusively that quinia possesses a property which so subdues, moderates, mildens, and shortens this process that the disease runs its course without producing its usual ravages on those organs on which it is wont to spend its force, and that this peculiar property or power is not identical with that by which it reduces a high temperature to one of low degree.

MT. VERNON, IND.

THE FLEXED POSITION THE BEST IN FRACTURE
OF THE THIGH.

BY J. A. COMINGOR, M. D.

In the Medical Record of June 13th Dr. Powell, Chairman of the Committee on Surgery, made a report to the Ontario Medical Association on the Use of Plaster Splints and Plaster Bandages in the Treatment of Fractures, in which he advises them for the lower jaw, arm, elbow, patella, and leg, and condemns them for the forearm and thigh.

The query is, why this discrimination? What objection can there be in using the plaster dressing in broken thighs and broken forearms? In the West, in the treatment of fractures of the femur in any part of its course, the plaster bandage is brought into requisition daily, and for many years has been recognized as a standard treatment; in fact, I think it is regarded as the safest and the best treatment, and when it has been applied properly and with care the results have been uniformly good. At this time and in this locality I know of no disasters following its use.

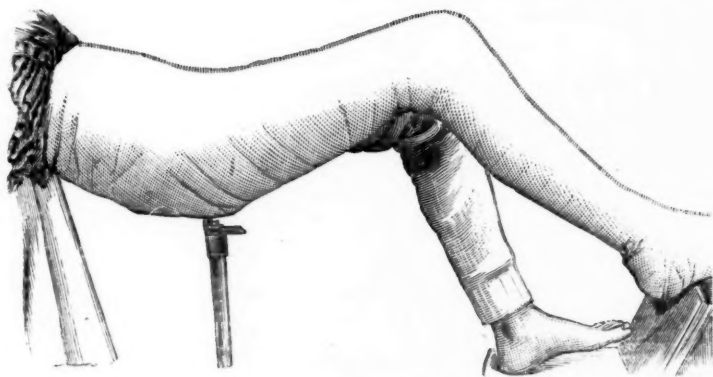
The fear of its producing complications, such as strangulation of the circulation, causing death of the parts, is not entertained here. On the other hand it is believed to be the best way to prevent such complications.

I am not writing this for the purpose of making an argument in favor of the plaster dressing; it needs none. Experience has already fixed its place in surgery. But, notwithstanding surgeons in this country and throughout Europe are familiar with its application, and appreciate its advantages, especially in the treatment of fractures of the thigh, I feel sure they will pardon me for making a few comments on the method of application and the position of the leg.

Extension and counter-extension constitute the fundamental idea in the management of fractures of the thigh. It was this

thought and its recognition by surgeons that brought into use Buck's extension pulley, and in fact all other extension apparatus. Till the past few years I, in common with other surgeons in the use of the plaster, dressed the leg in the straight position, adding Buck's extension. But I was not satisfied with either the position or apparatus. I felt that the position was not the best, and that the extension apparatus did not answer the purpose for which it was designed, and was a useless appendage. I therefore concluded to change from the straight to the flexed position, and lay aside Buck's extension. The change was made more than a dozen years ago, and I have been highly gratified with the results. I have been slow in announcing this change for the reason that it was an innovation on the usual custom and might work mischief; but I am now satisfied that it is the best, and am willing to so go on record.

To give a clearer and more definite idea of this plan I present this cut. If the muscles are in a state of relaxation, or put



on the stretch during the application and hardening of the bandage, they will remain inactive, and this is all that is required. It will be observed that this position gives us certain angles and points of pressure which prevent the splint's giving in any direction, thereby maintaining the leg in the position it is placed during the process of union, whether the patient is on his back or on his feet. Confinement to bed is not necessary; in

a few days after the accident, if there be no complications, the patient may be permitted to leave his bed, and even his room. This, in many instances, will prove invaluable. Union will take place with greater rapidity, more surely, and more perfectly; hence there will be less liability to non-union. In the straight position, with the pulley attachment, these advantages are lost.

The use of the weight and pulley in connection with the plaster splint, either in the straight or flexed position, is in my opinion irrational, unphilosophical, and useless, as it adds nothing to the extending power.

As shown in the illustration, the application is made with patient on an ordinary table, hips overhanging the end, resting on an adjustable tripod, and foot of sound leg on a chair or stool to maintain his balance.

Before applying the bandage the skin should be well covered to protect it from the action of the plaster, and for this purpose my preference is a neatly fitting pair of knit drawers.

INDIANAPOLIS, IND.

Reviews.

Comparative Anatomy and Physiology. By F. JEFFREY BELL, M. A., Professor of Comparative Anatomy at King's College. Illustrated with 229 engravings. 12mo, pp. 555. Philadelphia: Lea Brothers & Co. 1885.

It can not be far in the future when a fair knowledge of comparative anatomy and comparative physiology will be a necessary prerequisite for the study of medicine with every applicant for instruction in the mysteries of practical medicine. One can hardly conceive of a more rational foundation in the culture of a person who is to devote his active manhood in preventing or correcting the disorders of his fellow man than in such thorough understanding of the structure and activity of the human organization as is to be obtained by the study of the structure and activity of the inferior animals, and especially those which have homogeny with man.

Prof. Bell has presented in this volume a clear and comprehensive outline of comparative anatomy and physiology by such easy steps that the student can follow his teachings without stumbling, and understand all that has been taught when he gets through. There is no effort made to group animals according to their similars, but to present the structure and function of organs that are devoted to like duties, comparing them in their various forms and peculiarities from the lowest forms of animal life to the most complicated organizations.

An introduction of seventeen pages gives an outline of biology, defining living matter, pertaining alike to animals and vegetables, pointing out what constitutes a plastic, a cytoide, and a cell, characterizing a tissue and an organ, and illustrating generally what constitutes life and the discernable differences between an animal and a vegetable, declaring that although "we can always with certainty point out the differences which distinguish a rose from a bee," we can not always decide

whether an organized unicellular bit of protoplasm is a vegetable or an animal.

Five pages are devoted to the ameba as the representative of the primary form of animal life, and then a long chapter, eighty pages, on the General Structure of Animals, running through all classes from the protozoa to the mammalia. Chapter IV is of equal extent, and treats of the organs of digestion; and Chapter V, in twenty pages, illustrates the blood and blood-vascular system of all animals. Thirty-six pages are given to a Comparison of the Organs of Respiration, nineteen pages to Organs of Nitrogenous Excretion, and ten pages to Organs of Special Secretions. A ninety-seven-page chapter describes the protecting and supporting structures, and a sixteen-page one the organs of movement, while the vocal organs are disposed of in six pages. The Nervous System and Organs of Sense are studied through eighty pages, the Organs of Reproduction through fifty-three, and the Development of the Metazoa through twenty-four pages to the end of the volume.

There is a clearness of phraseology in the text and a fitness in the illustrations that render this volume an easily understood expression of the views of the author in the lines he has chosen to present them, and these lines are admirably selected to furnish the student with the best instruction, in this somewhat unique direction, that can be conveyed within the limits that Prof. Bell has set to his labors. He does not profess to present a complete statement of the physiology of animals; on the contrary, he declares in his preface that "the time to write a text-book of comparative physiology, as we now understand it, has not yet arrived," because both the physical and chemical investigations in this field are in a transition state and so rapidly progressing. Nevertheless he details ascertained physiological facts so far as they are available to aid in presenting a symmetrical text-book of the character he has executed. He refers to the nature of his work, and closes his preface with this paragraph:

"As this manual is written on lines that are rarely followed, I shall be greatly obliged for any suggestions as to its improve-

ment, or for corrections of any errors which may have found their way into it."

The author is an Englishman, Professor of Comparative Anatomy in King's College, London. The book was issued from the London press. The only Americanism in its make up is the title page, which has the imprint of its Philadelphia publishers; and, while the volume does not display the taste nor artistic style usual in books gotten up in the American publishers own manufactory, the paper is pleasant, the type clear, and the essentials of an agreeable book to read fully realized.

J. F. H.

Acne, its Etiology, Pathology, and Treatment. A Practical Treatise, based on the Study of one thousand five hundred Cases of Sebaceous Disease. By I. DUNCAN BULKLEY, A. M., M. D., Physician to the New York Skin and Cancer Hospital; Attending Physician for Skin and Venereal Diseases at the New York Hospital, Out-patient Department, etc. 8vo, pp. 280. New York and London: G. P. Putnam's Sons. 1885.

"Acne may be defined as a functional or inflammatory disease of the sebaceous glands, exhibiting excessive and abnormal or deficient secretion of sebum; or, the inflammatory elements of congestion, papules, pustules, or tubercles, located in or about the sebaceous glands, or any or all of these features combined."

Such is the definition of the disease to which Dr. Bulkley devotes his instructive and exhaustive treatise. After citing numerous authorities touching the frequency of acne he concludes, on his own observation of twelve thousand eight hundred and thirty-seven cases of miscellaneous skin diseases, that this phase of cutaneous disorder constitutes about 12.5 per cent of the whole.

He treats of six varieties of acne, three functional: acne sebacea, acne punctata, and acne molluscum; and three inflammatory: acne simplex, acne indurata, and acne rosacea.

Dr. Bulkley begins with the anatomy and physiology of the sebaceous glands and their relation to other elements of the skin. He estimates their number at not less than six hundred thousand in the healthy adult of average size; very hairy people may have one million. An accurate measure of the amount of sebum secreted by these glands is not possible, but the author estimates the average at about two pounds daily. The physiological service of the secretion is to keep the skin soft and the hair glossy. Its insufficiency leaves both skin and hair dry and harsh, and its excess produces a disagreeable greasiness.

A table of 1500 cases of acne shows that 489 were males and 1011 were females, the females being more than twice as numerous as the males. More than half (770) of the cases occurred between the ages of fifteen and twenty-five years, and within the next five years—that is, up to thirty years of age—enough more (223) cases were added to show about two thirds of the whole number occurring in the fifteen years between the ages of fifteen and thirty years.

Etiology of acne is obscure, and the author cites the causes under three heads, General, Special, and Local; but after all his talk the etiology is still obscure.

He tables the duration of acne in five hundred cases before they came under his observation. In acne simplex over 40 per cent had existed at least three years, and in 9 per cent more than ten years, and in acne rosacea more than 44 per cent had continued at least three years, and in 14.5 per cent more than ten years, before they were examined by him. How long they continued after is not stated.

Treatment is multitudinous. The last chapter in the book is headed Therapeutics of Acne, and contains sixty formulæ of mixtures, pills, lotions, ointments, and one bath, some of which are quite complicated. One chapter on the treatment of the disorder is devoted to Diet and Hygiene, and closes in these notable words: "In conclusion, it will be seen that in order to obtain the best results in acne it is essential for the physician to treat the entire economy and to study the patient rather than the

disease. . . . To treat it successfully, therefore, will often require the highest and best effort both on the part of the patient and education and discretion on the part of the physician."

Twenty-six figures, mostly from original drawings made for the author by Dr. George T. Elliott, serve to illustrate the text in an excellent manner. None of them have note of the power of the microscope used in making the drawings, and while this is not so material for exhibiting the relations of parts in anatomy, either normal or morbid, it is of some moment to the student who may desire to make original investigations in the same directions.

It has been the intention of the reviewer in the foregoing to present in disconnected outline such an insight into the character of Dr. Bulkley's treatise as would enable the general practitioner to decide whether it is a work that he needs to perfect his knowledge of the nature of acne in its various forms and to improve his methods of management. He will surely find it full of information, but notwithstanding it is the work of a rather enthusiastic specialist he will rise from its perusal with a pretty firm conviction that the management of acne is still full of "glorious uncertainties."

Dr. Bulkley is not a novice in dermatological lore, practice, nor authorship, having previously published several volumes on disorders of the skin, and now has in preparation a treatise entitled *Principles and Practice of Dermatology*.

The publishers have issued the volume in a neat and attractive style, embracing the qualities of good paper and clear type, now common in first-class medical publications. J. F. H.

A Text-book of Pharmacology, Therapeutics, and Materia Medica. By T. LAUDER BRUNTON, M. D., D. S. C., F. R. S., Fellow of the Royal College of Physicians; Assistant Physician and Lecturer on Materia Medica at St. Bartholomew's Hospital; Examiner on Materia Medica in the University of London, in Victoria University, and in the Royal College of Physicians, London; Late Examiner in the University of Edinburgh. Adapted to the United States Pharmacopeia by Francis A. Williams, M. D., Boston, Mass. Large 8vo, pp. 1035. Philadelphia: Lea Brothers & Co. 1885.

Therapeutics is the department of practical medicine needing more strongly than any other branch the illuminating power of the exact methods and logical deductions of scientific procedures. It is conceded on all hands that the application of remedies for the relief of pathological conditions is guided chiefly by empirical experience. When such experience has wrought true knowledge, it is as safe an instructor as any that can be sought, but it is an axiomatic expression that experience is not necessarily wisdom; and in therapeutics, where the factors are so numerous and so complicated, the highest acumen is not infrequently honestly misled by experience to erroneous conclusions.

Empirical estimates of the powers of drugs to ward off pathological activity or to restore physiological integrity, where such estimates have been founded on sufficient observation by competent investigators and stated in the interest of honest therapeutics, have been accepted by the profession since the dawn of historical medicine in all cases where no more trustworthy means of determining the point were available. But while such empiricism has been the greater foundation for legitimate therapeutics, it has opened the door for parties who have a purpose to serve to allege a success for numerous preparations—in which they have a personal interest—and to support their claims with an array of reputed clinical experience, existing only in their imaginations or their mendacity, that serves to convince many a general practitioner who does

not recognize that the propositions and testimony are false both in premise and conclusion, and the consequence is that acute pharmacists have become the heralds of an advancing therapeutics, spurious and mischievous but popular with physicians who practice medicine by following suit, and fancy they are progressive.

Dr. Brunton presents to the profession the first formal treatise aggregating and systematizing the fragmentary pharmacological information that may serve as a scientific confirmation of the truths of legitimate empiricism, and correction of its errors, and in antagonism to the wild and unscrupulous teachings of mercenary manufacturers of alleged new remedies or new and superior preparations of old remedies which they alone know how to concoct.

In his introduction the author says :

By *materia medica* we understand a knowledge of the remedies employed in medicine. This knowledge may be subdivided into several divisions: *Materia Medica* proper, Pharmacy, Pharmacology, and Therapeutics.

This gives to the term "*materia medica*" a wider significance than commonly held in this country, and in truth makes the title of the book a misnomer. In the subsequent use of the term in the body of the volume the author gives it the ordinary meaning and drops *materia medica* proper, which in his introduction he defines to signify what is ordinarily meant by *materia medica*. He defines pharmacology, as now understood, thus :

Pharmacology is a knowledge of the mode of action of drugs upon the body generally and upon its various parts. It is of comparatively recent growth, but is now one of the most important subdivisions of *materia medica*."

Many observers have been in the field of pharmacology for some years, and among them none more active or accurate than Dr. Brunton himself, and the results of their experimental labors have been promulgated in numerous monographs, con-

fined to a narrative of the methods of examination and comparison of results with those of other inquirers in the same special single lines of investigation, and among these writers Dr. Brunton has been one of the most prolific and of highest satisfaction. In the present volume he has embodied all his own original work in pharmacology, all the work of others that he has verified, and the conclusions of other reliable observers that cover ground not embraced in his own experiments. The author's own sense of the importance and range of this division of his treatise may be gathered from a further quotation, viz :

Pharmacology has made such rapid advances of late years that it is exceedingly difficult for many men who are engaged in practice to understand thoroughly either the methods by which it is studied or its results. Many students also, although they may be able to pass a good examination in physiology, find it difficult to apply their physiological knowledge to pharmacology; and therefore, in discussing the action of drugs upon various functions of the body, I have sometimes entered more fully into the physiology of those functions than may seem to some at all necessary or advisable.

In discussing pharmacological questions we are accustomed to speak of the *action* of a drug on the body, or on its various parts, but we must remember the effect produced is not due to a one-sided action—that what we actually mean is *reaction* between the drug and the various parts of the body.

In some instances we know that the drug itself is changed in the body as well as the functions of the body modified by the drug; and even in those cases where the drug itself is eliminated from the body apparently unaltered, it is probable that it has entered into various chemical combinations within the body while circulating in the blood or present in the tissues.

Such is the scope of pharmacology under the author's measurement, and it is readily obvious that all rational therapeutics as distinguished from empirical therapeutics rests upon pharmacology. He devotes nearly one half of the text of the volume—forty-two per cent—to the discussion of the principles and practices of general pharmacology and therapeutics. This is the distinguishing characteristic of the book, and the feature

that will constitute it the most valuable contribution to rational therapeutics ever dropped from the press, and the initial issue of a long line of progeny ultimately to conquer supreme position in the art of healing, and supersede so much of existing methods of instructing students and advising practitioners as is embraced within the limits it may reach from time to time.

The teaching of the volume is distributed into six sections. The first section, on General Pharmacology and Therapeutics, occupying three hundred and ninety-one pages, is divided into twenty chapters, and the matters it sets forth are presented under three hundred and forty-one sub-heads. Chapter I begins with the enumeration of the seventy elements which compose the earth, giving the symbol of each and its atomic weight; the characters of them are then set forth in a classified series; then the relation they have among themselves, and the relation they bear to physiological activity. This instruction is not imparted in conventional style, but in the concise, simple, and lucid manner of the author. It is quite surprising what an amount of satisfactory information can be conveyed in a few words when the writer knows exactly what he wishes to communicate and has command of language to express his ideas without circumlocution.

Chapter II of this section treats of the circumstances which affect the action of drugs on the organism, recognizing the difficulties of the problem and pointing out the most satisfactory manner of surmounting them. The third chapter is devoted to the action of drugs on protoplasm, blood and low organisms. This is starting pharmacology at the genesis of living things, and builds up that department of medical science as Foster builds up physiology from its first manifestation in protoplasm. The author's study of bacteria in this association involves the consideration of the destruction of germs and the principles of disinfection in specific diseases.

Then follow a chapter on each the Action of Drugs on Invertebrata, on Nerves, on Muscle, the Spinal Cord, the Brain, the Organs of Special Sense, Respiration, the Circulation, on the

Surface of the Body, the Digestive System, Tissue Change, Excretions, the Generative System, Methods of Administration of Drugs, Antidotes, Antagonistic Action of Drugs and Dosage. This catalogue indicates how thoroughly the field is explored, and the several chapters present the points involved not as we find them presented in ordinary text-books, but, for the chief part, from the result of experiments by himself and other competent investigators, and always under the conviction that the "physician does not want to know only what the actions of any one drug are; he rather requires a knowledge of drugs, and of the manner in which the actions of the individual members of a class differ from each other. He requires, in fact, a knowledge of the ways in which the various functions of the body can be influenced by drugs both in health and disease in order that he may restore health to his patients." And he makes his treatment of the topics more elementary and fuller because, as he declares, "I find that many others are, like myself, apt to forget those parts of physiology which they are not constantly studying. I have therefore thought it well, for the sake both of students and practitioners, to give a short account of the normal functions of the different parts of the body before I proceed to discuss the alterations which are produced in them by drugs, or which they undergo in disease. In the case of the heart and kidneys also, where the action of drugs is complicated and difficult, I have found it necessary to enter a little more fully into the physiology of these organs than is done in the ordinary text-books."

This must convince the reader that the author had contemplated every phase of his undertaking that bears upon its success, fully realizing that as he was a pioneer leading through a comparatively new region he must mark his way so that the most inexperienced could follow without hesitation. It was this view of the situation, doubtless, that induced him to occupy so much time in the preparation of the present work after the ordinary labor of completing a treatise on materia medica had been accomplished, for he tells us in his preface that more than

fifteen years ago he had finished the manuscript of a work on *materia medica*, containing in an amplified form the substance of the third section of the present volume, but just as it was about to go into the printers hands he asked for a little delay to clear up some doubtful points by experiment, and as he progressed he found so much to do in that direction that after a while he abandoned the old plan, destroyed the manuscript, and at the end of all these years gives to the world the work under review, of which the long first section, on General Pharmacology and Therapeutics, is the major product, though the other sections bear witness to the author's long special studies.

Section II, on General Pharmacy, treats of the processes for the creation of pharmaceutical preparations, their nature, dosage, etc., in classes, arranged in alphabetical order, all completed in twenty-eight pages. A pregnant paragraph in the opening of this section reads:

We seem now on the verge of discovering the mode of preparation of many organic alkaloids, and when this has been done the vegetable *materia medica* will be less important than it is now, inasmuch as it is probable that, by using artificial alkaloids, prepared always under similar conditions, we may obtain purer products and greater constancy of action than we can at present from the natural active principles.

Sections III, IV, V, and VI, treat respectively of Inorganic *Materia Medica*, Organic *Materia Medica*, Vegetable *Materia Medica*, and the Animal Kingdom, the remedies of this last division being the product of the vital activity of the animal from which it is derived. The matter of each section is handled with exactness and thoroughness on a common plan so far as its nature permits, and in all cases the therapeutic value of the drug is determined by the pharmacological principles demonstrated in the first section, so far as they may be applicable.

In order to acquaint the reader with the author's arrangement of his matter, and the manner and style of its presentation, a quotation is submitted of the entire treatment of one drug, selected from Section IV, on Organic *Materia Medica*,

Chapter XXIX, on Carbon Compounds—fatty series—and a sub-chapter on saline ethers that “correspond to metallic salts in which the metal is replaced by an organic radical,” viz :

AMYL NITRIS, U. S. P. and B. P. NITRITE OF AMYL, $C_5H_{11}N_2O_2$;
117.

Preparation. By distilling dilute amyl alcohol with nitric acid, sulphuric acid, and copper wire. The distillate is washed with caustic soda to remove hydrocyanic and other acids; the moisture removed by potassium carbonate, and the nitrate purified by fractional distillation.

Characters. A yellowish liquid, with strong, ethereal, fruity smell. When freely exposed to air it decomposes, leaving a large residue of amyl alcohol, insoluble in water, but soluble in all proportions in alcohol, ether, and chloroform.

Impurities. It is apt to contain free acid, nitrate of amyl, nitropentone.

Tests. The physiological test is the most certain. One or two sniffs from a bottle containing the nitrite are usually sufficient to produce flushing of the face and fullness of the head. If the preparation is impure or has lost its strength, this effect does not occur. Some specimens are entirely inert.

Physiological Action. When mixed with blood it forms methemoglobin; which is not so readily deoxidized as hemoglobin itself. The blood, under the influence of the nitrite, becomes of a dark chocolate color, both in the arteries and veins, and oxidation in the body is interfered with; so much so that in rabbits convulsions almost exactly resembling those of ordinary asphyxia are rapidly produced by the inhalation of the drug. The methemoglobin may be broken up by reducing agents, and the blood will then take up oxygen again. It is therefore probable that when the viscosity of the blood becomes great, the oxidized products of tissue waste will act as reducing agents, and again restore the internal respiration. When *inhaled*, nitrite of amyl causes at first a short, dry, tickling cough, followed in about half a minute by flushing of the face, throbbing of the carotids and their branches, a quicker and fuller pulse, a feeling of tension in the head, sometimes lachrymation, quickened respiration, and giddiness. The giddiness is more especially felt if the patient is sitting up. If the dose of nitrite be large the respiration becomes very quick, labored, and dyspneic. The *blood-pressure* is very greatly lessened by nitrite of amyl, the

diminution being chiefly due to dilatation of the arterioles. The *pulse* in man and in dogs is very much quickened by it. In rabbits the acceleration is not so great. This appears to show that the quickening is in a great measure due to diminution in the tone of the vagus roots in the medulla, caused by the fall of the blood-pressure. The dilatation of the arterioles appears to be due to weakening or paralysis, either of the muscular walls of the arterioles themselves or of the vaso-motor ganglia in or near them. This is shown by the fact that the nitrite of amyl lowers the blood-pressure in animals, even after the cord has been divided just below the medulla. It has been objected to this that Bernheim has found that when the capillaries are dilated by nitrite of amyl, they may still be made to contract by irritation of the vaso-motor nerves; and he concludes from this that the dilatation is due rather to paralysis of the vaso-motor centers than to vaso-motor nerves or to the arterioles. It is possible that the dilatation may be partly due to weakening of the vaso-motor centers also; but Bernheim's objection is altogether without force, because in animals killed by curare the muscles will still contract on application of an electric current to motor nerves. In this case the nerves are so far paralyzed that they will no longer respond to stimuli sent down from the nerve centers, although they will do so to strong currents, and probably the same thing occurs with the muscular walls of the arterioles when paralyzed by nitrite of amyl.

Action on Muscles. The voluntary muscles are not paralyzed in animals poisoned by nitrite of amyl, but when the muscles of a frog are exposed to the vapor they soon lose their contractility. It was stated by Dr. Richardson that nitrite of amyl, like curare, paralyzed the ends of the *motor nerves*, and that it acted in consequence as an antidote to strychnia. On repeating his experiments other observers have failed to detect any paralysis of motor nerves. I have found that nitrite of amyl alone does not paralyze them, nor does strychnine alone, but if a frog be poisoned with strychnine after one leg has been protected by a ligature from the influence of the poison, and is then exposed to the vapor of nitrite of amyl, the joint action of the strychnine and nitrite paralyzes the ends of the motor nerves, while the nerves of the limb protected from the strychnine retain their irritability, although both were equally exposed to the nitrite of amyl.*

Action on the Nervous System. It lessens reflex action, apparently by its action on the spinal cord.

*These experiments were made with the *Rana temporaria*.

On the Urine. When nitrite of amyl is given to animals, either by inhalation or hypodermically, sugar appears in the urine.

Uses. The action of nitrite of amyl in causing flushing was first observed by Guthrie, and Dr. B. W. Richardson recommended it as a remedy in spasmodic conditions, from the power he thought it to possess of paralyzing motor nerves. In the spring of 1867 I had opportunities of constantly observing a patient who suffered from angina pectoris, and of obtaining from him numerous sphygmographic tracings, both during the attack and during the interval. These showed that during the attack the pulse became quick, the blood-pressure rose, and the arterioles contracted; for the form of the pulse curve was such as could only be caused by contraction of the arterioles, the pain which came on every night lasted for one and a half or two hours. All other remedies were nearly useless, though bleeding always removed the pain for one night. It seemed probable that the great rise in tension was the cause of the pain, and it occurred to me that if it was possible to diminish the tension by drugs instead of bleeding, the pain would be removed.

I knew from unpublished experiments of Dr. A. Gamgee that nitrite of amyl had this power, and therefore tried it on this patient. My expectations were perfectly answered. The pain usually disappeared in three quarters of a minute after the inhalation began, and at the same time the pulse became slower and much fuller, and the tension diminished. Occasionally the pain would disappear, though the pulse regained its normal fullness, and on these occasions the pain always reappeared after the lapse of a few minutes. Whenever the pulse again regained its normal character completely, I knew the pain would not return.

In some cases of angina pectoris nitrite of amyl has failed; one reason of this may be either that the drug has not been pure, or that it has undergone changes from age. In one case mentioned to me by Dr. Balfour, the patient was only relieved by nitrite of amyl newly made, the drug appearing to lose its power in a few days. From its power of relieving vascular spasm I used it in headache, and found it occasionally serviceable. As migraine is generally connected with vascular spasm I employed the nitrite of amyl in headache, and found that frequently, though not invariably, it relieved pain. It was also useful in neuralgia of the scalp. As epilepsy has been supposed to depend upon spasmodic contraction of the cerebral vessels, I employed it in this disease, during the fit, without success, but Dr. Crichton Browne found that when administered immediately after the appearance of the aura it prevented the fit which would otherwise

have come on. In seasickness, a disease probably of cerebral rather than gastric origin, nitrite of amyl appears to give relief. It has been employed to aid circulation in cases of syncope and in chloroform poisoning, its administration in the latter case being combined with the depression of the patient's head below the level of the body and the use of artificial respiration. In spasmodic asthma it sometimes affords some relief, but this is not very marked. It is useful in the case of persons who are subject to sudden flushes of heat and profuse perspiration.

The administration of nitrite of amyl is not attended with much danger. I have pushed it in many cases and have seen no bad effect from its use. In cases of chronic bronchitis and emphysema, however, it is advisable not to give it even for the relief of asthmatic attacks which come on in the disease, as the difficulty of breathing already present may be seriously increased by the action of the drug upon the blood. It has been thought that its administration would be especially dangerous in aortic disease; and no doubt it is well both in this and in other cases to give the drug in the recumbent posture, and thus avoid the faintness which might otherwise occur. Although it causes a feeling of fullness in the head little danger of apoplexy is to be apprehended from it, because the blood-pressure instead of being higher is much lower than usual, and therefore the tendency of the vessel to burst must be reduced to its minimum.

It will be observed that this is a departure from the ordinary way of presenting the therapeutic standing of a drug. Nitrite of amyl is not classed by the author as an antispasmodic, nor a depresso-motor, nor alphabetically, but its association is fixed by declaring that specifically it belongs to the saline ethers, generically to the fatty series of carbon compounds, and to the class of organic materia medica. Its preparation, character, impurities, tests, and physiological action are detailed in harmony with the teachings of preceding sections touching these points, and its uses are also given in accord with the pharmacological doctrines presented in the first section of the volume, while its special applications are taught from the author's clinical experience chiefly. In these particulars the presentation of nitrite of amyl is representative of the author's modes, and typical of the contents of the book, though unique as to the usual methods of writers on materia medica; but it will not have

escaped the attentive reader's notice that no directions for the administration of nitrite of amyl and no dose are given. In these particulars the article is not representative of either the author or the book. Almost uniformly the dose of a drug is quite definitely stated, but in this instance nothing nearer exactness is given than that "one or two sniffs from a bottle containing the nitrite is usually sufficient to produce flushing of the face and fullness of the head," and this is advanced as a test of its purity and not as a quantity for therapeutic use. And while it is announced that the nitrite has been applied by inhalation, by hypodermic injection, and in vapor, for experiments and otherwise, there is no other intimation of how the drug should be exhibited. This is hardly sufficient for the student or the neophyte in practice. Indeed, with a drug so powerful as nitrite of amyl, with an enlarging field of application, and heretofore so rarely among the armamentaria of the general practitioner, specific and positive instructions as to quantity and mode of administration would seem to be indispensable in a work intended for the profession at large.

There are one hundred and eighty-eight illustrations, well executed, some of them from original drawings, and many of them of substantial aid in elucidating the text.

Three very full indexes complete the volume; a general index of forty-six pages, one of diseases and remedies of thirty-eight, and a bibliographical index of twenty pages.

The printing is handsomely done, the binding well executed.

J. F. H.

Fownes' Manual of Chemistry, Theoretical and Practical.

A new American from the twelfth English edition, embodying Watts' Physical and Inorganic Chemistry. With 168 illustrations. 8vo, pp. 1056. Philadelphia: Lea Brothers & Co. 1885.

Webster defines a manual to be a hand-book, a small volume to be carried in the hand. Ten hundred and fifty-six pages can

not be consistently styled a small book, though it may fall far short of being sufficient to treat fully of the great subject of chemistry in all its ramifications. It is probably in this latter sense that this thick volume is characterized as a manual.

Usually the title-page of a book for professional reading contains a legend setting forth the name of the author, his professional, scientific, and literary titles, and all information deemed necessary to enlighten the world touching his labors, standing, and fame; but what would the novice see in this announcement to advertise him of who Fownes is or what Watts has done or is doing, beside making a work on physical and inorganic chemistry? This omission of the eccentrically modest title-page may be supplied by stating that Fownes was a most erudite and accomplished English chemist, who published a manual of chemistry in London in 1847, and died early in 1849. So excellent was this manual that for nearly forty years it has served as the groundwork of many editions, under sundry editors, of one of the best books on chemistry that has appeared from the press in either England or the United States. Fownes must indeed have been a talismanic name to have been appropriated by so many editors as a shibboleth to testify to the legitimacy and purity of their chemical science through all these years.

Mr. Watts died, also, soon after issuing his work on Physical and Inorganic Chemistry, and while preparing a new edition of Fownes, and the work under review is said by the publishers to be the work of Watts completed in England, but by whom is not stated, and republished here without an American editor.

Notwithstanding the paucity of information about the book in the title-page, and the absence of other usual preliminary announcements, except fifteen lines of the American publisher's preface, the student seeking a trustworthy guide in his chemical studies, and the practitioner desiring to refresh his knowledge of the present status of the rapidly-developing chemical science may rest assured that there is nothing printed in the English language that is more reliable, or will serve their purpose better than the book whose title stands at the head of this notice.

J. F. H.

Milk Analysis and Infant Feeding. A Practical Treatise on the Examination of Human and Cows' Milk, Cream, Condensed Milk, etc., and Directions as to the Diet of Young Infants. By ARTHUR V. MEIGS, M. D., Physician to the Pennsylvania Hospital and to the Children's Hospital; Fellow of the College of Physicians, Philadelphia, etc. 8vo, pp. 102. Philadelphia: P. Blakiston, Son & Co. 1885.

In this little volume Dr. Meigs sets out in detail his methods of analyzing milk, which seem to be true methods and complete, so that, although he has reached conclusions that differ materially from those of other analysts who have long had the confidence of the profession, he gives substantial grounds for the faith that is in him. The material point in his investigations is that heretofore the amount of casein in human milk has been rated too high, and the amount of sugar too low. Vernois and Bacquerel, who have long been the standard authority, state these to be, casein 3.92, and sugar 4.36 per cent, while Dr. Meigs in no instance found more than 1.26 per cent of casein with 7.12 per cent of sugar, and the average of the milk of forty-three women was 1.04 per cent of casein and 7.40 per cent of sugar.

Granting the author's examinations to have produced correct results, it is at once seen how erroneous must be the composition of artificial food for infants founded on the previous analysis of human milk. Dr. Meigs gives formula for the preparation of infant food founded on his different understanding of the ingredients of human milk, and thereby lays the foundation of a hope that in the future there may be, to some extent at least, an abatement of the terrible mortality of infants fed on artificially prepared food.

The author adds some rational and instructive views concerning the feeding and management of children other than the milk they are given.

In his preface Dr. Meigs notifies his readers that much contained in this book has before been given to the public in papers read before professional societies. It may be added that this in

no wise detracts from the value of the present publication, which is one that should be in the hands of every practitioner who has to advise about the food of children, and especially children fed on other food than their mother's milk. J. F. H.

The Essentials of Histology, Descriptive and Practical, for the Use of Students. By E. A. SCHAFER, F. R. S., Jordrell Professor of Physiology in University College, London; Editor of the Histological portion of Quain's Anatomy. 8vo, pp. 245. Philadelphia: Lea Brothers & Co. 1885.

"This book is written with the object of supplying the student with directions for the microscopical examination of the tissues. At the same time it is intended to serve as an Elementary Text-Book of Histology, comprising all the essential facts of the science, but omitting unimportant details, the discussion of which is only calculated to confuse the learner." Such is the initial sentence of the author's preface, and signalizes his idea of what he has accomplished. It may be that with the assistance of a competent instructor, such as Prof. Schäffer doubtless is himself, the student might follow the course laid down in the forty-two lessons into which the teachings are divided, and find no insurmountable barriers in his path; but to try the journey alone would convince him that the path was rough and sometimes obscure. There are two hundred and eighty-one illustrations from microscopic examinations. Some of these have the amplification exactly stated, many have no allusion to the power used, while numbers have "highly magnified," others "magnified," "much magnified," and the like terms of description that make it difficult for the unassisted student to find precisely the same picture. The book is well gotten up and handsomely illustrated, and, notwithstanding its brevity of expression sometimes, and indefinite statement at others, it will be found full of solid food and nutritious for those who are a-hunger in this direction.

J. F. H.

Clinic of the Month.

THE TREATMENT OF CHRONIC BRIGHT'S DISEASE.—Dr. Dana, of Portland, Me., concludes a carefully prepared paper (Boston Medical and Surgical Journal) with the following practical suggestions:

1. One of the most important indications is to avert or reduce hyperemia and inflammation of the kidneys. With this end in view a uniform and sufficient warmth of the surface of the body should be maintained. In this disease, and also where predisposition to it exists, when the large amount of blood normally present in the cutaneous capillaries is reduced by chilliness of the surface, a corresponding hyperemia of the renal capillaries is very likely to occur. In a case recently under my observation, of the typical parenchymatous nephritis form, the man owned and steadily worked upon a farm located upon a narrow neck of land projecting out from the Maine coast into the sea, and commonly swept by cold and damp winds, often sudden and severe. Frequently, when covered with profuse perspiration, his skin would become chilled with the winds, and he had himself noticed an apparent connection between these experiences and the development of his trouble. A moderately warm and equable climate is a great advantage. A sufferer from this disease, who is so favorably circumstanced as to be able to avail himself of different climates for different seasons of the year, so that he can have the benefit of free out-of-door life all the year round without risk of becoming chilled, has his chances of prolonged and comparatively comfortable life thereby greatly increased. Woolen undergarments should be worn, thick enough to insure warmth without inducing sweating. A flannel night-gown is advisable in cold weather. In acute exacerbations of the disease, attended with increased heat, the patient should be kept in bed, between blankets, for days, or weeks. The importance of maintaining a uniform warmth of skin in

this affection does not seem to be fully appreciated by the average practitioner. Local applications to the lumbar regions are useful, such as leeching or cupping, followed by warm fomentations, especially when a sense of heat and heaviness has arisen, with scanty secretion of urine. I have found advantage in large packs. Several thicknesses of towels may be used, large enough to thoroughly envelop the small of the back and come round somewhat freely upon the abdomen. These should be wrung out in tepid water, covered with oiled silk or impervious paper, and bound firmly on with a flannel swathe. A small blanket, folded once, may then be wrapped and firmly pinned around the body below the waist. These, having been worn for the night, are removed in the morning, the skin is sponged with cold water, and rubbed dry, and a flannel swathe is worn for the day. Mild diluent diuretics are sometimes called for.

2. A second indication is to unload the obstructed uriniferous tubules of their accumulations. The thrown-off and altered epithelial cells, transuded fibrines, extravasated corpuscles, and fatty débris, sometimes in the form of casts, frequently occlude the tubules, and add to the existing disability of the kidneys. Simple diluents and mild diuretics are then needed, such as cream-of-tartar water, and pure natural waters like the Poland spring water. They should be drunk freely, and, by preference, on an empty stomach, so as to be quickly absorbed and passed off through the kidneys.

3. A third indication is to build up the blood and promote nutrition. Whether, or not, the blood is ever the starting point of the morbid process in the system, it is certainly true that the peculiar anemic look of the patient is often the first thing that arouses in the mind of the physician a suspicion of the true nature of the disease, while, in the advanced stage, the blood is constantly found impoverished and depraved to the last degree, and utterly unfit to maintain healthy nutrition. Of the large class of building-up remedies I will mention, as specially useful, the *mistura ferri et ammonii acetatis*, cod-liver oil, and

malt. Judicious and persistent use must be made of this class of remedies.

4. A fourth indication is to improve the condition of the nerve centers. The importance of this indication is specially plain in the cirrhotic form of the disease occurring in painters and others who have been exposed to poisoning by lead. Here the iodide of potassium, the dose of ten to twenty grains, conveniently administered in half a tumblerful of Vichy water, may be given three times a day for long periods of time, with markedly good results. The same method is applicable to cases of syphilitic origin, or occurring in systems specifically infected. In such cases the corrosive chloride of mercury in small doses may be substituted for the iodide of potassium for the period of a few weeks, from time to time, with advantage. In some of the cirrhotic cases of unknown origin, I have found great benefit from the use of the chloride of gold and sodium, as suggested by Bartholow, in the average dose of the twelfth of a grain, in pill form, after each meal. I have seen periods of marked improvement of general condition and special relief of distressing nervous symptoms follow its use. Arsenic, in small doses, and the hypophosphites are sometimes useful.

5. The fifth indication is to promote the elimination of urea from the blood. In order to appreciate the importance of this indication we have only to remember that uremia constitutes the chief danger of the disease, a fatal apoplectic seizure being occasionally its first revelation; or, to call to mind the fearful sufferings of the paroxysms of uremic dyspnea, uremic headaches and uremic convulsions. Here we must mainly rely upon vicarious evacuations by the skin and bowels, and I believe that sudorifics are the most valuable class of remedies. Profuse diaphoresis may be induced by hot air- and hot vapor-baths, and by the internal administration of various drugs, of which jaborandi is by far the most valuable as an eliminator of urea from the blood. But the means, which I have found at once the most efficacious and convenient, is the hypodermic injection of pilocarpine. I have resorted to this method many times with the

best results. The dose used is generally a quarter of a grain, the patient being in bed between blankets, and I usually find the entire surface of the body covered with a profuse sweat within the space of five minutes. When the process of diaphoresis is over, the skin may be wiped dry, and fresh clothes put on. The amount of the secretion is enormous, and the elimination of urea has been shown to be large. Great relief of the uremic symptoms is often obtained by the daily use of this method for a series of weeks. I have seen, in a case still fresh in my mind, headache, dizziness, dyspnea, unrest, marked impairment of vision, and heart irritability so largely and rapidly subside as to raise a doubt in the mind of friends, and even of the attending physician, as to the correctness of a diagnosis, unhappily confirmed by the later history of the case, and at last by the autopsy. I recommend the plan to my professional brethren, cautioning them to be sure to get an article of good quality.

6. A sixth indication is to evacuate dropsical accumulations. For this purpose mechanical methods are sometimes useful, such as acupuncture of the legs, prepuce, labia, etc., or a short incision over one of the malleoli. Tapping of the abdomen is generally to be avoided in renal dropsy. Erysipelas is specially liable to follow operative methods in this form of dropsy. Hydragogue cathartics, which are often so well borne, and so satisfactory in results in cardiac dropsy, are neither so safe nor so useful in the dropsy of Bright's disease. Sometimes, however, resort must be had to elaterium in suitable doses and combinations. Sometimes making temporary use of the remaining powers of the kidneys, diuretics may be given, especially the infusion of digitalis with the iodide of potassium or cream of tartar. But I believe that in this disease, not only for the elimination of urea but also for the evacuation of dropsical accumulations, the hypodermic use of pilocarpine is not only one of the safest, but also one of most effective measures at our command. It is a good plan to alternate the various methods, laying the burden of vicarious service alternately upon the different organs. The Basham's mixture, above mentioned,

besides being useful as a blood restorer, often acts as a gentle tonic-diuretic.

7. A seventh indication is to sustain the heart. It has been shown by Johnson, and others, that in the inflammatory forms of the disease the walls of the small arteries and capillaries are very constantly thickened, and their caliber diminished. Indeed, it has even been proposed to call the disease an "arteri-capillary fibrosis." Associated with this vascular affection, if not indeed caused by it, is found hypertrophy of the left ventricle of the heart, which very generally at last undergoes fatty degeneration and dilatation. It is, therefore, a matter of great importance to save the heart if possible from all strain. No overexertion of body or mind should be allowed. Excitements of all kinds should be avoided, and tranquility of mind should be promoted. Digitalis and strychnine are perhaps the two drugs most used, from time to time, to strengthen the heart's action.

8. My last indication is to palliate the suffering of this distressing disease. The methods for this are in large measure involved, and have been mentioned under other heads. As much of the distress doubtless arises from uremia, so the most lasting relief is that which comes from the elimination of the urea. I will mention a few items here. In the fits of dyspnea prompt relief is sometimes obtained from the hypodermic injection of the quarter of a grain of morphia with the hundred and twentieth of a grain of atropine. The nitrite of amyl quickly affords relief in some cases, a few drops being put upon a handkerchief and held to the nose. The same use of morphine and atropine is often useful in convulsions, restlessness, and general nervous disturbance of the advanced stages of the disease. For the headache and dizziness a scruple of bromide of sodium in a teaspoonful of syrup of lactophosphate of calcium may be given three times a day, and for the insomnia thirty grains of bromide of potassium, with seven or eight grains of chloral at bedtime. For the uremic coma I have found the hypodermic use of pilocarpine by far the most effective remedy.

For diet, as a rule, any articles of plain and simply cooked food may be allowed which the appetite inclines to and the stomach is able easily to dispose of. In some cases advantage is found in a restricted diet of milk, skim-milk, or butter-milk.

Finally, while chronic Bright's disease is, at least, very generally fatal, yet the fatal issue is not necessarily a speedy one, and years of comparative comfort and effectiveness may sometimes be added to valuable lives by constant watching and judicious treatment.

HERNIA AND ITS RADICAL CURE.—Professor John Wood, of London, than whom there is no higher authority on hernia, ends a series of lectures (*British Medical Journal*) on the subject with the following conclusions:

It appears indubitable, from the results of the last twenty or more years' experience of the radical cure of hernia, that the position of those surgical writers who have maintained that the radical cure should not be attempted, except in the severest cases, is untenable. The operation has given as great relief and exemption from the minor troubles and worry which make life miserable as any operation associated with prolapse, such as hemorrhoids, and is even more safe. It is certainly quite as much called for, on the score of relief from pain and inconvenience, as most other abdominal operations. Though it may not, like ovariectomy, remove the certainty of a speedy death, and may, like colotomy, be called an operation of convenience or expediency, it often relieves suffering as severe as that for which colotomy is performed, and is attended by happier results.

The justification of the operation being admitted, it remains to consider what cases are most appropriate for it, and which of the many we have passed in review is most proper and applicable for the cases chosen. The rules I have observed in my own cases have been as follows. The subcutaneous plan has been adopted:

1. In cases of children above five years old, in whom trusses are useless and unavailable, because of neglect, violent cough-

ing and crying, sore groins, rapid increase in the size of the hernia, and interference with micturition.

2. In cases of young adults, or boys under fourteen, whose prospects in life as candidates for the naval, military, or engineering professions, or for colonizing, are seriously impaired by the hernial condition. Such persons may be far from surgical assistance when the exigencies of duty or occupation may produce strangulation, or the breaking of a truss may leave them defenseless; they are subject, also, to increased life-assurance-rates, from which the operation, when successful, relieves them. It should be done in able-bodied working men, generally, whose various laborious employments may place them continually in danger of strangulation, and whose strength and usefulness are impaired by the hernia. The extent of the necessity for a radical cure of rupture, and the patriotic and social motives which demand it, are clearly made manifest by the estimates of the number of recruits and conscripts rejected for this complaint. Malgaigne states that one in every thirteen Frenchmen is ruptured; Arnaud, one in every eight. During the civil war in the United States, 38,132 were rejected in two years. In this country, it is said that one in every twenty males is ruptured. The bodily ailments and mental worry which this condition and its consequences entail upon this large number of human beings make up a very impressive total of suffering. And the mortality from it must be also considered. In 1879, according to the Registrar-General's reports, as given by Mr. Spanton, no fewer than 1,119 deaths occurred from hernia, of which 23.5 per cent had undergone operation for strangulation, etc. The average rate of mortality of the operation of kelotomy in eleven large hospitals is given by the same author as 41.8 per cent. The proportion of the mortality from hernia increases with age to a marked degree. The importance of a permanent cure effected during youth for so large and useful a class as this, when thus viewed, rises to the point of a national demand.

3. In reducible cases, where the sac is thick and indurated

from truss-pressure, or where the omentum is continually slipping down under the truss, showing thereby that it is abnormally elongated, I open the sac, tie the vessels of the omentum separately, and remove it below the ligatures; tie up the neck of the sac flush with the peritoneum at the deep hernial opening, and apply wire or tendon-ligature to the canal and rings. When, from any cause, a first operation fails in effecting a satisfactory cure, I open the sac also, inspect its interior to discover any special cause for the failure, tie, and remove the sac, and lace up the canal and rings with especial care and security.

4. In all favorable cases of strangulated hernia, both inguinal and crural, the coverings and front wall of the canal being necessarily divided to search for the constricting tissues, I open the sac, examine the contents, remove adhesions and doubtful portions of omentum, then tie up the neck of the sac, cut it off short, and remove it altogether (except in congenital hernia), and secure the walls of the canal and rings, as in the subcutaneous method. Of course, a wrong diagnosis of the condition of the bowel or omentum, and of their fitness to be returned into the abdomen, or some other cause arising from the strangulation, may, in these cases, result in a fatal issue. But I believe strongly that, if drainage be free, and skillfully arranged, no increase of risk ensues from the attempt to produce a radical cure. Quite lately, I have done this in a case of *reductio en bloc* in a man who is now convalescent in the hospital.

5. Cases of irreducible hernia, and of large and unmanageable cases of reducible hernia, in patients otherwise in a good state of general health, and not above the age of sixty, and in which truss-pressure entirely fails to render the patient comfortable and free from danger, seem to me to justify and to require operation, if the patient wish for the benefits which he may reasonably expect from a carefully conducted operation under strict antiseptic methods. In all cases he should have the chances fairly laid before him, in a way that he can understand, and then have the option without bias or persuasion.

THERAPEUTICS OF CHOLERA INFANTUM.—The Therapeutic Gazette furnishes its readers with the following abstract of a classical essay by Dr. Baginsey, of Berlin, treating of the prophylaxis and therapeutics of cholera infantum:

The prophylaxis is to begin with the most careful notation of every dyspeptic disturbance during the summer, especially in such children as probably some weeks previously suffered from a dyspeptic catarrh or have just been weaned. The dyspeptic catarrh may or may not be dependent upon dentition, at any rate it is to be regarded as a serious morbid condition. The foolish view of many mothers, and—it is to be regretted—also of physicians, that diarrhea in children comes from the teeth, and consequently requires no astringent or any other treatment, slays annually thousands of young children.

If the catarrh, in spite of strict diet and appropriate remedies, can not be mastered even after a complete change of nutrition, the child is to be sent to the country under careful medical attendance.

The therapeutics of the affection will vary according to the stage of the latter in which the treatment is begun, and may either be the attack itself or the so-called period of reaction.

The treatment of the choleraic paroxysm is intended (*a*) to check the hyperexcretion, (*b*) to revive the cardiac power and thus protect the system against the danger of collapse. To satisfy both indications is only possible in the beginning; later, during the stage of existing weakness, the second object engages exclusively the medical attendant. The question whether medicines, which, like opium, subdue the violent intestinal peristalsis, are proper, is to be answered in the affirmative, but only conditionally. Opium is for children of a very tender age a highly dangerous drug; its action is often unquestionably favorable, but is surely harmful where it does no good. Its applicability, then, must be determined by the peculiarities of each single case. If the child is very restless, or if constant whining, violent movements, and expressions of pain when the abdomen is touched, point to abdominal colic, opium has to be

resorted to, and is best given in combination with an antiferment, such as calomel, iodoform, resorcine, or bismuth. The tincture of opium is to be given in doses of two to three drops, the extract in correspondingly smaller doses; Dover's powder and hydropathic applications usually act very well. The more quiet and apathetic a child is from the beginning, the softer and flabbier the abdomen, the more the diarrhea, as it were, passes off insensibly, the less appropriate is opium, the greater the danger to hasten the lethal exit through sopor and somnolence.

The antiferments assist likewise the stoppage of the diarrhea by eliminating the fermentation of the ingested matters which produced the heightened peristalsis. These remedies may also be employed alone without opium; our expectations though, in this case, must be moderate. Astringents, both the metallic and vegetable ones, are decidedly contra-indicated during the choleraic attack, though they are valuable in the secondary catarrhs.

Rectal washes, consisting of large quantities of lukewarm water, are more effective than generally understood. If, in spite of all instituted measures of relief, the collapse progresses, the extremities grow cold and the skin pale, the fontanelles recede and the face assumes what is known as the hippocratic expression, medicines intended to stop the diarrhea are no longer appropriate; true stimulants are then called for. The dietetic means, such as black, strong coffee and alcoholic stimulants (such as cognac, champagne, and genuine port wine) will also revive the flagging vitality. Small quantities are to be administered in short intervals, from a few drops to a teaspoonful, according to the age of the child. Wine is best given by itself, cognac with soda-water (cold), coffee best warm, and only if vomited, cold. Among all eligible medicines camphor, benzoic acid, liquor ammonii anisati, or liquor ammonii succinii deserve the preference. The following may be given every two hours to children of one half to two years:

R. Camphoræ tritæ, . . .	} āā 0.03-0.05 grm. ($\frac{1}{2}$ to $\frac{3}{4}$ grains);
Acidi benzoici, . . .	
Sacchari lactis, . . .	
	. . . 0.5 grm. ($7\frac{1}{2}$ grains).

Or the following :

R. Liquor ammonii, succinii, 1-2 pts, per 100.
One teaspoonful every half hour.

Unfortunately, all medicines are very liable to be vomited up in this, and, in fact, in all infantile affections; under these circumstances hypodermic medication should unhesitatingly be resorted to: acetic or sulphuric ether, in doses of two to five drops, or the tincture of musk recommending itself best. All are well borne, and act often with surprising promptness in raising the arterial wave and stimulating the great nervous centers.

During the height of the collapse, marked by diarrhea and vomiting, food (including even the mother's breast) is of course wholly interdicted. To quench the great existing thirst, seltzer-water, with wine or cognac (cold) or coffee is to be freely given. Warming bottles are to be placed to the feet and cold compresses every half hour to the abdomen as long as any algidity is absent. Is it advisable to bathe children during the paroxysm? Some authors praise baths, both cold and warm, though the former are scarcely advisable. Warm baths, especially when combined with chloride of sodium or calamus, are said to be of advantage, though Baginsky has never obtained any palpable benefit from them. The same is true of mustard-poultices and mustard-baths, though both should be tried, as they may at least cause a momentary improvement of the child's condition.

The period of reaction requires a novel and equally careful attention to the patient. The condition known as hydrocephaloid is here well to be separated from the so-called typhoid state. Hydrocephaloid manifests itself as a uniformly advancing phase of constitutional failing, and calls for a protracted mildly stimulating treatment. This is best initiated with either the mother's milk or ice-cold cows' milk, or Biedert's food. The child is now to be kept warm by warm compresses to the abdomen and even to the head; internally (in addition to the above-stated excitants), wine or coffee are to be given. Complications, such as bronchial irritation, abscess, or albuminuria, of course require the ordinary special attention.

In the typhoid state of cholera infantum lukewarm baths or lukewarm applications to thorax and abdomen are especially indicated when the respiratory tract has been attacked. Senega and the liquor ammonii anisati will then act much better than ipecac, which is rather apt to heighten the already existing inclination to vomit.

The cornea and conjunctiva usually do not obtain the attention to which these important structures are entitled. The eye is to be repeatedly moistened with lukewarm water or covered with a cloth saturated with greatly diluted chlorine-water.

THE TREATMENT OF PITYRIASIS VERSICOLOR.—Dr. W. Thornton Parker, of Newport, R. I., writes to the Medical Record:

I notice in to-day's Record an item concerning the treatment of pityriasis versicolor, in which sulphur ointment and nitric acid ointment and the corrosive sublimate solution are recommended. All these may be good remedies, but to me they seem needlessly harsh. I find it sufficient to direct my patient to take a warm bath or sponge bath before going to bed. After this I direct that a cake of soap, common bar soap, or better still, Frank Siddall's soap, be well moistened by holding it in warm water for a moment, and then rubbed on the spot, in fact, *well rubbed in*, until the soap becomes dry. The night flannel is then put on, and a cotton night-shirt. In the morning the dried soap is to be *removed* by the sponge bath. The bath must be thorough, and every vestige of the soap removed. For the day wear a clean flannel every morning and a clean flannel every night until the discoloration has disappeared. The flannels must be boiled and well washed before using again. This simple treatment, carried out faithfully for a longer or shorter time, according to the extent and persistency of the discoloration, will be found successful. The application generally prescribed will not prove satisfactory in many cases, unless this plan is associated with the treatment. I am quite certain that in treating this affection harsh methods are entirely superfluous.

Notes and Queries.

VALUABLE FACTS CHARMINGLY TOLD.—Timothy Holmes, Esq., in a recent address to the students at St. George's Hospital Medical School, London (*British Medical Journal*), speaks thus eloquently to his young hearers:

I need hardly say that I think you have made a wise choice of your future profession; for, though medicine is a hard mistress, insisting on the unremitting devotion of your whole energies, and, as Johnson said, involving "a continual interruption of rest and pleasure," still, to those who devote themselves heart and soul to her entire service, she gives rewards far more satisfying than titles or money; though, even in respect of its material results, I do not join in the depreciation of our profession which we so often hear. A man who follows it with assiduity and a fair share of intelligence, and who avoids all dissipation, is nearly sure to make his living by it. And of what other profession can so much be said? Very large fortunes may not be amassed by medical men, but an honorable competence will not fail to accrue to any one who has fair health and average good fortune, and who avoids the common imprudences of marrying before he can afford it and burdening himself with speculative expenditure which his income does not justify.

The real charm of the profession does not lie in the making of money, or in the shadowy prospect of honors; it lies in the endless variety of its objects, and in the unfailing interest of its every-day round. To a physician or surgeon worthy of the name there is a double interest in every case he is called on to treat—the human interest which he feels in the patient, and the scientific interest which he feels in the disease. The interest in both is enthralling. No doubt, however, the human interest and the human affection which you can not but feel for your fellow-creatures, as you watch them struggling with

the direst calamities of life, must be the more ennobling; and it is on this chiefly that you will have to feed your mind. You will learn as you advance in your profession that happiness is not confined to the prosperous, nor heroism to the distinguished; that a poor ignorant man can face suffering and death with an equanimity which philosophers often fail to display; that people may be serenely happy and tranquil, though their existence is a monotony of pain, and that death is often looked on more as a friend than a terror. You will learn, I think, if you reflect well on what you see, to distrust the philosophy which teaches that the mind is a function of the body, and at any rate you will be convinced that pain is not the worst of evils, nor death the greatest of calamities. Mingled, no doubt, with much that is mean and pitiful, you will come across scenes of unostentatious courage and of devoted affection, which can not fail to raise your opinion of men, and increase your love for your kind; and you will be repaid by the gratitude and affection of many to whom you have been serviceable, and will feel in your degree the happiness of the patriarch of old: "The blessing of him that was ready to perish came upon me, and I caused the widow's heart to sing for joy."

And if, when looked at in its social aspect, the practice of medicine is so rich in rewards it bestows, it is hardly less rich in scientific interest. No doubt, to the general public, it seems both barbarous and grotesque to talk of the most repulsive infirmities and the most agonizing sufferings as "very interesting cases;" yet no one can doubt the absorbing interest of the study of the processes of disease, or the still more intense anxiety with which we watch the success (or, alas! too often the failure) of our efforts to arrest them. In fact, apart from such interest, no one could labor among such agonizing scenes and in such horrible surroundings. It is the peculiar glory of medicine that it adds to the delight which attaches to every branch of the scientific study of Nature the far higher delight of sympathy and charity.

The chief drawback to its pursuit is the labor which it

entails, a labor never ending, and which leaves its victim no repose, literally, night or day; and under which men are apt to degenerate into mere business-machines, and to care for nothing except their profession. No doubt this is a less evil than the listlessness which follows on idleness, still it is an ignoble condition. It deprives a man of all power of companionship with the world at large, and shuts from his eyes many of the sweetest and loveliest things of life. It makes a man the slave of his business, instead of its master, and it confines his mental faculties to a groove, in which they wither, so that business itself soon becomes a dull routine. The best antidote to this tendency, is the cultivation of a taste for some worthy object, which can be trusted to assert itself even against the claims of business. The best of all such tastes seems to me that for literature, a taste which can be indulged in any circumstances, in any condition of health short of actual acute disease, and at any time of life, nay, which often becomes keener and stronger in age. I would also recommend you to cultivate the great and lasting possession of conversational power, which has its advantage over reading, in being more social and more unselfish. I believe the art of conversation is said to be decaying. The more the pity, for it is a grand art, as well as a most delightful accomplishment, and, to a medical man, who has to associate with all kinds of persons, in all kinds of circumstances, is almost a necessity. But, whatever may be your taste, so that it is innocent and healthy, cultivate it when you are young, and it will help you to resist the pressure of business when you are old. I do not want you to waste your time as students; you have, in fact, not an hour to spare. But healthy recreation wastes no time. No one can study profitably without a large allowance of total rest and change; and in those happy hours it is well to mount your hobby, if only a tricycle, and drive him fearlessly along, forgetting that there is such a thing as anatomy or surgery. You will be none the worse anatomists and surgeons in the long run. I well remember that, in my time at Cambridge, two suc-

cessive senior wranglers were as prominent on the river as in the Senate House. A man who is nothing but a doctor, is not generally first rate at that.

We hardly realize without some effort of mind, the enormous progress which our art has made in the years comprised by the active professional life of men hardly beyond middle age. We talk of the wonders of electricity and steam, of the benefits bestowed on life by all the mechanical inventions of the day, and with reason. They have transformed our daily life, and familiarized the poorest with luxuries which before were out of the reach of monarchs. But all the wonders of mechanical science are poor compared to that of anesthetics; and no luxuries which modern inventions have put into our power can for a moment be compared with the immense saving of human life and diminution of human suffering produced by the more rational and successful methods which have prevailed, and are still gradually extending themselves over the whole field of modern medicine and surgery. We who are surgeons can perhaps best estimate this from the success of our operations in the present and in the past; and here most of us would be inclined to agree with my late friend, Mr. Callender, that the risk of the mere surgical procedure has diminished tenfold, so that operations which would have been scouted, in my younger days, as the follies of a madman are now undertaken as matters of common every-day routine. But, fortunately, it is only a small minority of the human race who are exposed to the sufferings and dangers of the great operations of surgery. In medicine also a similar progress has been attained—not, I believe, nearly to so great a degree, for medicine has not been favored by great discoveries, such as that of anesthesia, or wide-reaching theories, like that of antiseptics—still the extended study of pathology and chemistry, and the more accurate knowledge of the functions of the body in health and disease which modern physiology has given us, have placed our physicians in a position far different from their fathers, and have emancipated them from that bondage to imperfect theories and

traditional practice which caused so great a havoc in old times. Still more important to the public, and still more peculiarly the property of modern times, is the growth of preventive medicine, by which already our great cities have been raised to a condition of healthiness such as the healthiest parts of the country could not boast in former days, and by which we may hope, in no very long period, that the great epidemics which still ravage the world will be bridled, and, in civilized countries at least, gradually extinguished. On the whole, I do not doubt that if some future Buckle shall resume his predecessor's mighty task, and attempt to write again the history of modern civilization, he will allot to medicine one of the foremost places among the progressive sciences, and will allow that the medical profession have established their claim to consideration as among the most active benefactors of the body politic.

WHAT BECOMES OF MEDICAL STUDENTS?—Sir James Paget (St. Bartholomew's Hospital Reports) carefully traces the career of one thousand students at St. Bartholomew's Hospital:

Out of these twenty-three achieved distinguished success, holding important public and hospital appointments, or gaining leading practices. Sixty-six had considerable success, holding good appointments or lucrative practices in good districts, or gaining more than ordinary esteem and influence in society, Five hundred and seven, or rather more than half, attained fair success, being able to live by their profession, or to gain promotion in ordinary appointments, maintaining in all cases a good reputation. One hundred and twenty-four had very limited success, not having made a fair practice within fifteen years after entering the profession, or appearing likely to do so, or were only just making an uncertain livelihood, or were still employed as assistants in ordinary practices, or were erratic, or doing much less than had been expected of them. Fifty-six "failed entirely." Sixteen of these ill-fated men did not get on in life, though no reason could be assigned to account for their failure; and ten failed through ill-health or some distinct

misadventure. Ten were habitually irregular in their habits, and failed because of scandalous misconduct. Fifteen were never able to pass examinations, "some because of idleness and listlessness, a very few through sheer want of intellect." Ninety-six, or nearly ten per cent, left the profession after beginning either its study or its practice; in the same space of time only seven entered the hospital after abandoning other studies or callings, and five of the seven again changed their minds. This is a tolerably clear proof that medicine is not a profession to adopt as a change or a last resource, a fact that certainly does not apply to several other vocations. Of the ninety-six, three were wisely removed from their hospital-studies by their friends, and thirteen left pupilage of their own accord or were expelled. Two retired through acquiring means which put them in a position to dispense with work of any kind; four, after beginning practice, had to leave in disgrace; three took to the stage, one with success; four gained commissions in the army; three enlisted, one winning a commission; one successfully took to the bar; seven took holy orders; twenty went into business; nine became farmers; three homeopaths (all unsuccessfully), while twenty-four left the profession for various other pursuits. Eighty-seven died after beginning practice, twenty-one of diseases incurred in their duties, five by suicide, and one "judicially," attaining, nearly thirty years since, a terrible notoriety by his crimes. The remainder died of various diseases when either prosperous or otherwise. Forty-one died when students, seventeen of phthisis, four (at least) of fever caught in the hospital, while two committed suicide.

From these statistics we may glean just what might have been expected through guessing, namely, that a large proportion of those who enter the practice of the profession manage to make a little money, or, at least, to pay their way; that a very select few achieve fame (and still fewer fortune); that a few, not many, render themselves infamous, and that a considerable proportion become the victims of casualties.

Legislative measures and regulations framed by qualifying

bodies can exercise but little control over destiny, as shown in these statistics, excepting as regards that class of students who fail to pass their examinations. The entire question resolves itself, as do most of the others that have been raised at the same Council, into the yet larger subjects associated with the conduct of examinations and medical education. No university nor college can prevent men from attempting to enter a profession for which they are unsuited, nor from yielding occasionally to sundry deleterious influences; but neglect of students at any particular school of medicine can be discovered and controlled, and waste of time in studying accessory sciences for unnecessarily severe preliminary examinations can be remedied by obvious means. In this way, Mr. Marshall's motion may bring about useful results, and it is satisfactory to find that it was agreed to, a committee, consisting of Mr. Marshall, Dr. Haldane, and Dr. Struthers, being appointed, at the same meeting of the Council, to carry out the aims of the proposal. The result of its labors will be awaited with interest by the profession.

GENIUS OR MADNESS?—The Medical Times gives the following particulars about Victor Hugo:

His uncle died insane; his brother, Charles Hugo, who at an early age gave promise of great literary talent, became insane before twenty, and spent the latter part of his years in a hopeless state of dementia; and one of the poet's daughters, still living, is the inmate of a *maison de santé*. That in a family thus tainted with insanity a man of immense genius should arise is only another instance of that close hereditary connection between mental disease and highly intellectual powers which Moreau de Tours so forcibly pointed out in his celebrated book, "*La Psychologie Morbide*;" but any impartial reader will find in many of Hugo's best writings a large number of passages which could only have been conceived by a diseased imagination and which bear the indelible stamp of madness. In this respect the French poet widely differs from his great

prototype, Shakespeare, who in the wildest flights of his poetical phantasy still remains faithful to sound common sense. The mind of Shakespeare was evidently a healthy one; that of Hugo was not; and if some future Plutarch attempts to strike a parallel between these two great literary giants, he will do well to keep this fundamental difference in view. It may seem ambitious to compare Hugo to Shakespeare, but in this city and at the present day most people seem inclined to place the modern poet above the older bard, an exaggeration which time will doubtless dispel. Yet, as regards the conduct of his private affairs, no man could excel Victor Hugo in that shrewdness which persons "not quite right about the head" so often exhibit. No banker could more carefully have managed his fortune, no politician could have more tenderly nursed his popularity; and the man who left a fortune of more than two hundred thousand pounds sterling was the idol of a jealous democracy, while the politician who played at fast and loose with all parties was buried in the midst of universal applause. Such an instance of great "wit to madness near allied," the annals of the civilized world have never hitherto placed on record for the edification of posterity.

AMERICAN AND GERMAN METHODS OF VACCINATING.—The German Commission, says the editor of the Medical Record, which met a year ago at Berlin to discuss and formulate conclusions upon the subject of vaccination, took up, among other things, this point: "In what relation," it was asked, "does the number of vaccinia pustules stand to the protective influence of the vaccination?"

According to Dr. R. Koch, out of 703 smallpox patients, in the Stockwell Hospital, there died, of those having no scars, 47 per cent; of those having poor scars, 25 per cent; having one good scar, 5.3 per cent; having two good scars, 4.1 per cent; having three good scars, 2.3 per cent; having four or more scars, 1.1 per cent. From this it would be inferred that a person having four scars on his arm is almost certain, even if he gets

smallpox, to go through it safely. Koch, himself, takes the position positively, that the protective power of vaccination is in direct relation to the number of vaccinia pustules.

Prof. Grossheim cited cases to show that in re-vaccination the virus "takes" less often on those who have several scars. Similarly, Siegel found that among children presented for re-vaccination, the successors were the rule if the child had but one scar, and the exception if it had four to eight.

Arnsperger had observed during a smallpox epidemic that the protective influence of the vaccination increased with the number of the scars.

On the other hand, Reissner did not observe much difference. In re-vaccination of patients with one scar he got 96 per cent of successes, while of those with two or more scars he got 94.7 per cent of successes.

There is evidence in English statistics that persons having a number of scars are more surely protected against variola. It is true, however, that in England more than in Germany, these scars represent several successive vaccinations.

The conclusion of the Commission referred to was that two was the minimum number of pustules to be made in a protective vaccination. Professor Eulenberg even urged that the minimum should be three.

Here are conclusions quite opposed to American practice, and they are worthy certainly of attention.

NOTE ON THE THERAPEUTICS OF HAY-FEVER (SO-CALLED).—Dr. Beverley Robinson, of New York, writes in the Medical Record:

Within a period of a few weeks, I have been called upon to treat three sufferers from hay-fever. In the first case, that of a young lady of a neighboring city, the attack of hay-fever was *evidently* occasioned by a sudden and considerable fall of temperature, and had nothing to do with *pernicious pollen*, or a *derangement of the nerve-centers*. To this patient, in anticipation of an attack, her physician had given a four-per-cent solution

of hydro-chlorate of cocaine. When the periodical attack of hay-fever took severe hold of her; when sneezing was repeated and violent; when the conjunctivæ were red and swollen, when rest at night was impossible, on account of the severity of dyspnea due to asthma, cocaine was repeatedly and faithfully tried. At first it was dropped into the nasal passages; later it was used in the form of a fine spray. During two days partial relief was afforded, so far as the symptoms of *sneezing* and *nasal obstruction* were concerned. Subsequently the sneezing was stopped for a short time, but the obstruction was more marked, and the asthma was not at all relieved. Thereupon I made a very thorough and complete application of carbolic acid, one part, glycerine, three parts, to the nasal mucous membrane, giving very great temporary relief, which indeed lasted almost twenty-four hours. The following day I repeated the local application and had no further occasion to make use of it. The sneezing, nasal obstruction, and bronchitic asthma had nearly disappeared, and a few days later my patient was entirely well.

Since the time I treated the case just reported I have had two others under my care, marked, however, by more or less continued nasal occlusion, but having already passed beyond the period of paroxysmal sneezing. In neither of these cases was there any asthma or notable ocular suffusion. Cocaine had been used freely and often. It had relieved during the first few days in a temporary manner; subsequently it had increased nasal obstruction. What I have noticed in this place in regard to hay-fever, I have already seen several times where cocaine had been used frequently in the nasal passages for other diseases, viz., that it causes secondary occlusion of the nasal passages, due, as I believe, to a paralytic condition of the turbinated structures caused by its action. In my two late cases of hay-fever I obtained notable relief by two or more applications of carbolic acid, one part, glycerine, two parts, but not to the remarkable degree that I did in my first case. I explained this by the fact that these were very different as regards the pathological conditions present. In one case there was considerable

thickening of the septum, and a small, bony exostosis situated posteriorly in the nasal passages; in the second case there was septal deviation and marked posterior turbinated hypertrophies with bands of membranous tissue going from the right inferior turbinated body to the posterior border of the septum. These cases were much benefited for the while by alterative ointments and applications of compound tincture of iodine. Subsequently they may both require the use of the cautery, or that of the saw and rouge forceps. These patients' general condition was unimpaired; at all events there was no satisfactory evidence of a hypersensitive state of the "cervico-occipital sympathetic."

I presume carbolic acid does good when it is of any use, mainly by modifying or destroying "sensitive areas of mucous membrane." I do not yet know whether it will accomplish its purpose as well as the galvano-cautery, but I have, at least, some ground for this belief.

Certainly, the cautery is not applicable to *all organic diseases* of the nasal passages, and I am, also, *now* of the belief that in the majority of cases hay-fever is quite *independent* of any morbid condition of the *nerve centers*.

CHOLERA.—Prof. Peter, of Paris, believes that cholera is the top, as it were, of a morbid series which may stop any where from a simple diarrhea up to real cholera. Cholera nostras is only a form of Indian cholera, from which it differs in intensity: either of them may become epidemic. As to real cholera being contagious, the professor thinks that it is limited to persons who are weakened by disease or to some individual predisposition. Thinking that the disease is an irritation of the solar plexus, with a hyperemia of the digestive tract, Dr. Peter recommends every possible means to combat this irritation: vesication of the epigastrium, continuous current—one electrode on the stomach and the other in the rectum (a current of twenty-five milliamperes was used), dry frictions, alcohol; for pain, hypodermics of hydrochlorate of morphia; in plethoric persons, leeches; and, finally, Prof. Peter spoke at length of the use of Dr. Chapman's

ice-bag. He had used it in ten cases, with a result of ten cures. The ice-bag is a triple rubber bag, about twenty to twenty-four inches in length and about four inches wide. Each part is filled with fine pieces of ice, and it is applied to the back along the spinal column. Its application should be constant, so the ice must be changed from time to time. The vomiting was stopped by its use almost at once, while there was a great diminution in the cramp. The patients warmed up, the pulse came back, and all the symptoms gradually went away. Dr. Chapman is an English physician who has practiced now for a number of years in Paris, but was formerly in India, where he had cholera to treat. He has just published a book entitled "Cholera Curable." Some of your readers may remember his former recommendations of the ice-bag for seasickness. Dr. Miquel, whose interesting work here in regard to atmospheric germs is so well known, has a late article on the subject of "Cholera and Atmospheric Bacteria," comparing the number of bacteria found in the air during the last epidemic and those before and after. It was seen that the number was greatly increased during the epidemic, and grew with it, falling afterward. A series of tables are given to prove this fact. The more the air was charged with bacteria, the worse the cholera was; so that a microscopic analysis of the air leads to this hypothesis, that Indian cholera has for its morbid agent a bacteria; that this bacteria can take as a vehicle the air, and so infect human organisms directly or by means of entering the water or food we use. Temperature does not seem to affect the air-bacteria. The conditions that preside over their generation are *heat* and *humidity*; those that favor their dissemination are *dryness* and *wind*.

REVULSIVES IN THE TREATMENT OF SCIATICA.—Dr. Pagliani reported a large number of cases of sciatica which he cured by the application of a revulsive in the shape of a cerate made with senna. This plaster was kept on the part for seven hours, and followed by baths of hot, dry air. Some twenty-one cases of cure were attested. (Paris Correspondent of Phil. Med. Times.)

TREATMENT OF ENTERITIS IN CHILDREN.—Some two hundred and fifty cases were treated in all, with a result of only two deaths, under the direction of Dr. Cayla. With an absolute milk-diet (with lime-water), starch-water rectal injections were given, and the two following prescriptions:

- R. Tinct. nucis vomicæ, gtt. iii;
 Syrup. krameriaë, 15 grams;
 Syrup. cydonii, 15 grams;
 Aquæ destillate, 40 grams. M.
- R. Potassii bromidi, 50 centigrams;
 Syrup. belladonnæ, 15 grams;
 Syrup. menthæ pip., 15 grams;
 Aquæ destillate, 40 grams. M.

Sig: Teaspoonful hourly of each alternately.

The nux vomica increases the contractility of the muscular fibers, the rhatany and quince act as astringents, while the bromide and belladonna stop the exaggerated secretion of the glands. (*Ibid.*)

THE SAP OF THE FIG-TREE.—Dr. Bianchi, of Florence, spoke of the therapeutics of the sap of the fig-tree. Pliny, and others writing in the Middle Ages, used it. A few drops extracted from the leaves and fruit, placed on a piece of wet fibrin, rapidly reduce it to a substance soluble in water, which gives the reaction of peptone. Signor Bianchi has found this substance very useful in dyspepsias where there was a deficiency of the gastric juice. It could also replace papaine in application to the diphtheritic membrane and to old ulcers. (*Ibid.*)

POMADE FOR PRURITUS VULVÆ.—A favorite formula for this trouble with Dr. Juliens, of Paris (Paris Correspondent of Philadelphia Medical Times), is:

- R. Zinci oxidi, 25 grams;
 Acidi salicylici, 1 gram;
 Glycerini amyli, 25 grams.

M. Sig: Apply as needed.